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# STATEMENTS

OF THE

# Regents of the University

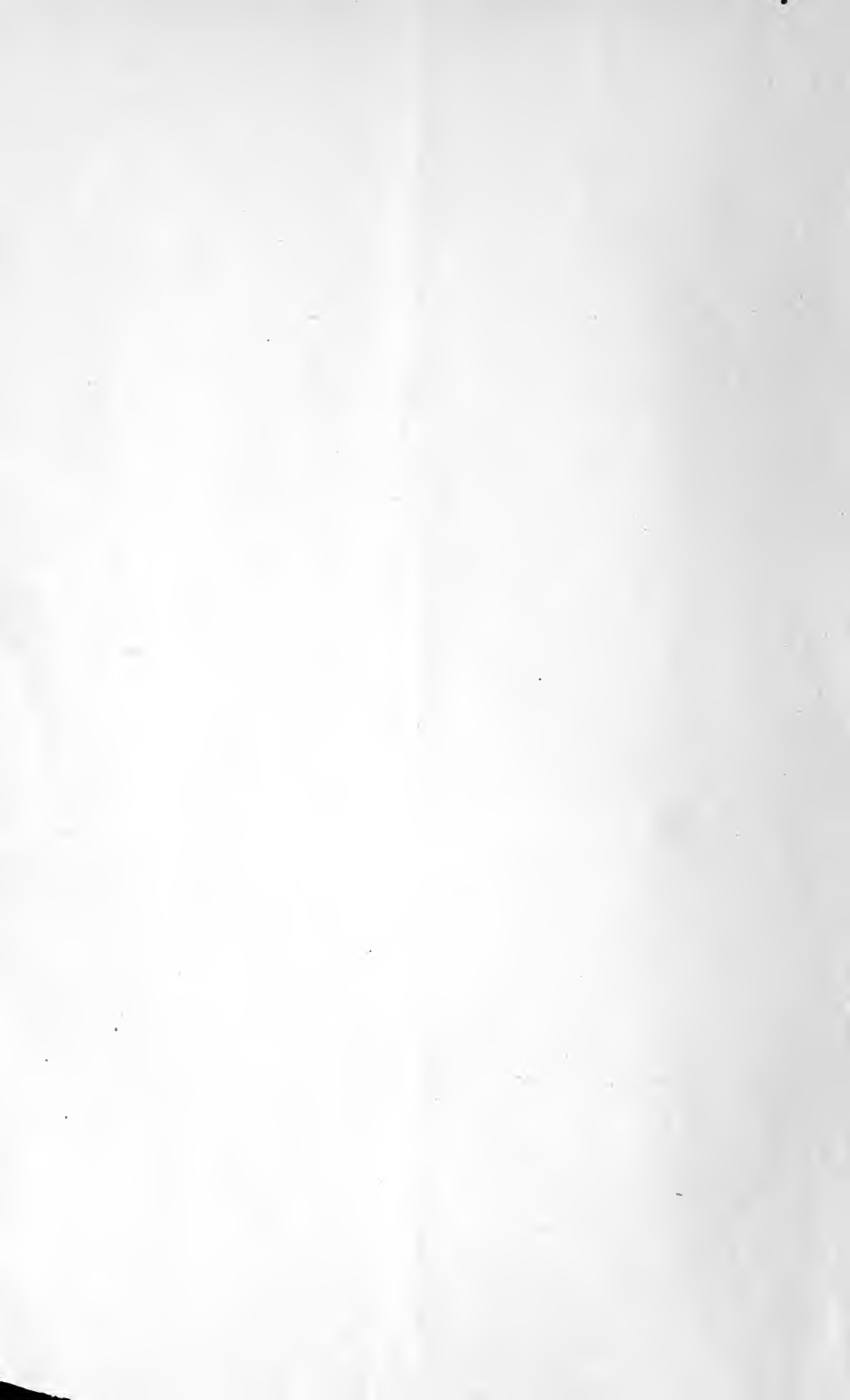
OF CALIFORNIA,

TO THE

Joint Committee of the Legislature,

MARCH 3, 1874.





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# MEMORIAL

OF THE

## Board of Regents to the Legislature

REQUESTING

### An Investigation.

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TO THE HONORABLE THE LEGISLATURE OF THE STATE OF CALIFORNIA, REPRESENTED IN SENATE AND ASSEMBLY:

The Memorial of the Regents of the University of California respectfully represents:

That for nearly six years, since the organization of the University in June, 1868, they have administered the educational and financial affairs of the University, always under circumstances of great difficulty, but with some success, as witness the present condition of the University, with 200 students and 20 instructors in its various departments.

Your Memorialists feel confident that their labors in aid of the education of the youth of California will be better appreciated by the public authorities, as well as by the mass of the people, with thorough information upon the whole subject.

It seems at present to be supposed, and very erroneously, as the Regents think, that there have been

FIRST. Some deficiencies which could have been avoided in the teaching in the departments of agriculture and mechanics in the University.

SECOND. That some errors have been committed in the management of the agricultural grant made to the State by Congress for the endowment of the University.

THIRD. That the Regents have not shown due economy in using the funds which the Legislature has appropriated for the University.

The Regents of the University therefore respectfully ask of the Honorable the Legislature, that it will, in the exercise of its legitimate authority, create a joint committee of the Senate and Assembly, with full power to send for persons and papers, to inquire and report to your honorable bodies.

I. What instruction has been given in agriculture in the University of California; whether the same has been defective or not; and if defective, wherein such defect has consisted, and what is the cause as well as the remedy of such defect.

II. What has been the management, by the Regents of the University of California, of the 150,000 acres of agricultural lands donated by Congress to the State of California, for the use of the University; whether the same has been defective or not; and if defective, wherein such defect has consisted, and what is the cause as well as the remedy of such defects.

III. Whether or not the Regents have properly administered the funds of the University which have been entrusted to them; and if not, in what particulars.

The Regents of the University respectfully represent to the Honorable the Legislature, that such examination, made as above indicated, would tend to promote the interests of the University, from the establishment of which so much benefit has been justly expected to flow to the whole people of the State, and especially to the great majority who desire a complete education for their children, but are not able or willing to send them to distant cities for this purpose.

While we have indicated a joint committee of each House as the one which we would prefer, we shall be satisfied with any other efficient method of inquiry.

Dated February 17th, 1874.

H. H. HAIGHT, *Chairman Com. of Board  
of Regents.*

J. WEST MARTIN, *Sec'y pro tem.*

RESOLUTION  
OF THE  
SENATE AND ASSEMBLY  
INQUIRING INTO THE

Affairs of the University of California.

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*Resolved* by the Senate, the Assembly concurring, that a Joint Committee be appointed of three members of the Senate and five members of the Assembly, with power to send for persons and papers, to inquire and report :

1st. What instruction has been given in Agriculture and the Mechanic Arts in the University of California ; whether the same has been defective or not ; and if defective, wherein such defects consist, and what is the cause as well as the remedy of such defects.

2d. What has been the management, by the Regents of the University of California, of the 150,000 acres of agricultural lands donated by Congress to the State of California, and by the State to the University ; whether the same has been defective or not ; and if defective, wherein such defect has existed, and what is the cause, as well as the remedy, of such defects.

3d. Whether or not the Regents of the University have properly administered the funds of the University which have been entrusted to them ; and if not, in what particulars.

4th. Also, upon any other matters relating to the University upon which, in the opinion of the Committee, further information may be of use to the Legislature or the public.

The following persons were appointed as the Joint Committee :

*Senate Committee*—LAINE, KEYS, AND EVANS.

*Assembly Committee*—AMERMAN, CANFIELD, FRIEDENRICH,  
MEYERS, AND TINNIN.

OFFICE OF THE  
 BOARD OF REGENTS OF THE UNIVERSITY, }  
 SAN FRANCISCO, March 3d, 1874. }

TO HON. S. H. LAINE,

Chairman of the Joint Committee, of Senate and Assembly, to  
 inquire into the management of the University.

DEAR SIR:—In response to the invitation of your Committee, the Regents of the University beg leave to present the following statement of facts, in the nature of a Report. This Report was carefully considered at a meeting of the Board, held this day, and was unanimously adopted, and the Secretary was instructed to certify the same to you, as strictly correct in all parts and particulars.

I have the honor to be,

Very respectfully, yours,

J. WEST MARTIN,

Secretary *pro tem.* of the Board of Regents.



# STATEMENTS OF THE REGENTS.

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## RESPONSE TO THE FIRST INQUIRY.

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The first inquiry is as follows :

“*First.* What instruction has been given in Agriculture and the Mechanic Arts in the University of California ; whether the same has been defective or not ; and if defective, wherein such defects consist, and what is the cause as well as the remedy of such defects.”

The following papers are presented as illustrating the work of the University in respect to Education in Agriculture and the Mechanic Arts, especially the former. It is not for the Board to express an opinion as to whether this instruction is or is not “defective,” but it may be proper to say that no complaint in respect to it has ever been addressed to the Board, by any student, parent, teacher, professor, agriculturist, or other citizen. It is safe to presume that the reports respecting its deficiency arise, in part at least, from a want of knowledge as to what has been done, as to what difficulties have been encountered, and as to the experience elsewhere on this very subject.

### *1. The Requirements of the Law,*

#### (a) SOURCES OF THE ENDOWMENT.

The University endowment is derived from six sources, namely :

1. The University or Seminary Fund given by Congress, to California, as to other new States, for the foundation of a University.
2. The Public Building Fund, derived like the Seminary Fund, from the sale of certain sections of land given by Congress to the State for the construction of public buildings.

3. The property received from the College of California, on the condition of maintaining a College of Letters. This acquisition included the site of 160 acres, more or less, at Berkeley.

4. The Congressional Grant of 1862, commonly called the "Agricultural College Grant," given by Congress to California.

As the purpose of this grant is often misunderstood, its exact terms should be observed, as stated beyond.

5. Special grants made by the Legislature including the Tide Land Funds, Special Building Fund, and annual appropriations.

6. Private gifts—among the most noteworthy, the gift of Toland Hall in San Francisco, and the land given by Mr. Edward Tompkins for a professorship.

#### (b.) THE LAW OF CONGRESS.

The fundamental law controlling one of the six sources of revenue by which the University is maintained, is the Congressional enactment of July 2, 1862, by which a certain portion of the public domain was given to California for the foundation of at least one college, the character of which is amply defined.

It will be observed by the careful scrutiny of the enactment, that this law does not require the foundation of a mere college of agriculture, but of a liberal and comprehensive institution, in which the modern sciences and their applications to human industry are especially to be promoted, without the disparagement of any other culture.

The exact words are these: The Congressional fund shall be applied "to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

#### (c.) THE CALIFORNIA LAW, EXPRESSED IN THE "ORGANIC ACT."

The requirements of the State of California in organizing the University are thus stated in the "Organic Act."

“ The University shall have for its design, to provide instruction and complete education in all the departments of science, literature, art, industrial and professional pursuits, and general education ; and also special courses of instruction for the professions of Agriculture, the Mechanic Arts, Mining, Military Science, Civil Engineering, Law, Medicine and Commerce ; and shall consist of various colleges, namely :

*First*—Colleges of Arts ;

*Second*—A College of Letters ;

*Third*—Such professional and other colleges as may be added thereto or connected therewith.”

“ The College of Agriculture shall be first established ; but in selecting the professors and instructors for the said College of Agriculture, the Regents shall, so far as in their power, select persons possessing such acquirements in their several vocations as will enable them to discharge the duties of Professors in the several Colleges of Mechanic Arts, of Mines, and of Civil Engineering, and in such other Colleges as may be hereafter established. As soon as practicable, a system of moderate manual labor shall be established in connection with the Agricultural College, and upon its agricultural and ornamental grounds, having for its object, practical education in agriculture, landscape gardening, the health of the students, and to afford them an opportunity by their earnings of defraying a portion of the expenses of their education. These advantages shall be open in the first instance to students in the College of Agriculture, who shall be entitled to a preference in that behalf.”

“ The College of Mechanic Arts shall be next established ; and in organizing this, or any other College, the same regard hereinbefore indicated, shall be had for the general acquirements of each professor and instructor, so that he may be able to give general and special instruction in as many classes and courses of instruction as possible ; and inasmuch as the original donation, out of which the plan of a State University has had its rise, was made to the State by virtue of the aforesaid Act of Congress, entitled an Act donating land to the several States and Territories which may provide Colleges for the benefit of agriculture and the mechanic arts, approved July second, eighteen hundred and sixty-two, the said Board of Regents shall always bear in mind that the College of Agriculture and the College of Mechanic Arts are an especial object of their care and superintendence, and that they shall be considered and treated as entitled primarily to the use of the funds donated for their establishment and maintenance by the said Act of Congress.”

## (d.) THE PROVISIONS OF THE CODE.

The Code does not essentially change, in these particulars, the requirements of the Organic Act; but, as some of the specifications are omitted, for the sake of definiteness, the following provisions are quoted:

SECTION 1385. The University of California, located in Alameda County, has for its object general instruction and education in all the departments of science, literature, art, industrial and professional pursuits, and special instruction for the professions of agriculture, the mechanic arts, mining, military science, civil engineering, law, medicine, and commerce.

SECTION 1386. There must be maintained in the University:

1. A College of Letters;
2. Colleges of Law and Medicine;
3. Colleges of Arts, as follows: of Agriculture, Mines, and Civil Engineering; and,
4. Such other colleges as the Board of Regents may establish.

SECTION 1387. The College of Letters must embrace a liberal course of instruction in language, literature, and philosophy.

SECTION 1388. Each full course of instruction consists of its appropriate studies, and must continue for four years.

SECTION 1404. A system of moderate manual labor must be established in connection with the Agricultural College, upon its agricultural and ornamental grounds, for practical education in agricultural and landscape gardening.

SECTION 1449. A practical agriculturist, competent to superintend the working of the agricultural farm, and to discharge the duties of Secretary of the Board of Regents, must be chosen by Board as their Secretary.

## *II. How far are the Requirements of the Law fulfilled?*

The requirements above quoted have been fulfilled by the Regents, according to their best judgment, both in the letter and in the spirit, and in accordance with the experience of the best institutions similarly established in other parts of the country.

By a reference to the printed Registers of the University, it will

be seen that the College of Agriculture was first established among the so-called "Colleges of Arts" which the law provided for. The College of Letters was already in existence as the College of California, which gave up its property to the University.

The College of Agriculture, thus first established, has been steadily maintained from its commencement, with no diminution of its curriculum, but with increased advantages.

The introduction of manual labor was not possible until the removal to Berkeley, in the autumn of 1873. Those students who desired it—more than fifty in number—were then employed in work upon the grounds.

Arrangements were also made for the removal of the Secretary's office and residence to the site of the University, as required by law; and the services of a competent business man, familiar with scientific and practical agriculture, were secured in the Secretary's office.

The actual condition of the courses now open to students in Agriculture and the Mechanic Arts is indicated in the following paper, presented to the Board of Regents by the Academic Faculty. It was unanimously agreed upon as a correct statement, at a meeting when all but two of the voting members were present, and they afterwards expressed their entire concurrence.

REPORT FROM THE FACULTY ON THE COURSES NOW GIVEN IN THE  
DEPARTMENTS OF AGRICULTURE AND THE MECHANIC ARTS.

*University of California, Oakland, Cal.,*  
Feb. 28th, 1874.

J. WEST MARTIN, Esq.,  
Sec'y Board of Regents.

DEAR SIR:—The inclosed document, which you will please to lay before the Regents of the State University, was prepared by a Committee of the Faculty, in compliance with the request transmitted to the Faculty through President Gilman. After due consideration, this paper was unanimously adopted by the Faculty, as their statement of the matters brought under inquiry in the first of the resolutions given as instructions to the joint Legislative Committee of Investigation.

It may be proper to state, that at the meeting at which this paper was adopted, all the voting members of the Faculty were present, except Prof. Carr and Prof. Swinton. They subsequently signified their entire concurrence. Most of the non-voting members were present, and all of these concurred.

I am, yours truly,

M. KELLOGG,

Dean of Faculty.

#### REPORT.

It may be premised, that the object of the course of instruction given in the University in all its departments, including those of Agriculture and Mechanic Arts, is to furnish a broad and liberal culture adapted to the various callings of intelligent and educated citizens. With this aim in view, the course of instruction in the Colleges of Agriculture and Mechanics Arts has been so arranged as to embrace the following subjects :

1. *An English Course* : embracing the history and structure of the English Language ; Ancient and Modern History, Rhetoric and Logic. This course extends through four years.

2. A Course in *Modern Language* : embracing one or more modern languages, extending through three or four years.

3. A complete course of *Mathematics*, as constituting the basis of all scientific education, extending through three years.

4. A three years' course of *Mechanics and Physics*. Mechanics embracing the principles of machinery and the manifold applications of Power ; Hydrostatics, Hydraulics and Pneumatics ; Physics, embracing the principles of Heat and its various effects in Evaporation, Rain and Dew, etc.; the principles of the Steam Engine ; Electricity, Magnetism and Electro-magnetism ; Acoustics, Optics, and other Physical subjects, the knowledge of which is necessary to the intelligent farmer and mechanic.

5. A three years' course in *Natural History and Geology*. The course in *Botany* embraces the Structure and Physiology of Plants, *i.e.*, how plants germinate and grow and feed. The nature of their food, the circulation of sap, the changes which it undergoes, etc. The connection of this course with Agriculture is close and direct.

The course in *Zoology* embraces Comparative Anatomy and Physiology, and the Laws of Reproduction in Animals. The connection of these subjects with stock-feeding and stock-breeding is evident.

The relation of Geology to Agriculture is scarcely less important, since soils are derived from the disintegration of rocks, and their nature and fertility are therefore largely determined by the character of the country rock.

6. A course of *Chemistry*, general and analytical, embracing qualitative and quantitative analysis and laboratory work. The importance of this course, as forming the basis of scientific agriculture and many branches of arts, is evident. This extends from two to four years.

7. A course of *Engineering and Surveying*, which is important in its applications to irrigation and reclamation of lands.

8. Courses in Astronomy, Physical Geography, and Political Economy.

9. Besides these eight courses, which provide such a liberal culture as every educated citizen should possess, and many portions of which have a close connection with practical agricultural and mechanical arts, a *special course* is given to the students in the *Agricultural College*, by the Professor of Agriculture, on the subjects relating more specifically to that department.

No special instruction is given in Applied Mechanics, except such as is given in the course of Mechanics and Physics, as no instructor has been provided for this department.

The special instruction in Agriculture and Mechanic Arts is still deficient in desirable completeness. To meet this deficiency, the following suggestions are made :

1. Facilities for scientific and practical experiments in *Agriculture* and *Horticulture*, including Botanic garden and an Arboretum.

2. Instruction in *Economic Botany and Zoology*, including the study of insects injurious to vegetation, as recommended in the reports of the Regents.

3. Special instruction in applied Mechanics, as already recommended in the report of the Regents, pp. 29 and 30.

*Special Information in respect to the College of Agriculture.*

In order to throw as much light as possible on the subject of Agricultural Education in the University, the Secretary of the Board addressed the following letter to Dr. Carr, Professor of Agriculture :

LETTER TO THE PROFESSOR OF AGRICULTURE.

DEAR SIR: The Regents desire you to furnish, at your very earliest convenience, a statement of the instructions which you now give as a Professor in the University, a statement of what you regard as feasible for the improvement of the instructions in Agriculture and Horticulture, together with any and all information at your command which may lead to a full discussion of the subject of Agricultural Education in California.

They especially desire to know whether the statements respecting Agricultural Education in our University, in the memorial of the Farmers' Granges to the Legislature, are correct : and if not, in what particulars they are incorrect.

Yours etc.,

J. WEST MARTIN,  
Secretary pro tem.

RESPONSE FROM THE PROFESSOR OF AGRICULTURE.

GENTLEMEN OF THE BOARD OF REGENTS: Your letter, requesting me to furnish a statement of what my instruction now is, what I regard as feasible for its improvement, and whether the statements of the memorialists are true respecting Agricultural Education in the University, is received.

I am now giving instruction as follows: Two lectures a week on Agricultural Chemistry, to the Junior Class; two ditto to the Senior Class, on Agriculture and Horticulture; and one each week on Hygiene, to the Freshman Class, as follows:

"The special studies in the Agricultural Course will include, in the Junior year, the chemical composition of agricultural plants; the plant, as an organism, adapted to perform a certain work; the



material when wrought; the forces by which the work is accomplished; the relation of the plant to the atmosphere (agricultural meteorology) and to the soil; the nature, origin, and composition of the soil. The Senior studies will include tillage, irrigation, drainage, reclamation of land, field crops, sheep and cattle husbandry, forestry and arboriculture, sericulture, fruit and other special cultures, household and rural economies; together with a part of the lectures mentioned under the preceding year."

What I regard as feasible, and imperatively necessary, is, first: The adoption of a plan of operations for the practical development of the Department. See communication to the Board of *Sept.* 10th, 1872; also *Sept.* 3d, 1870, *May* 5th, 1870, and plan of grounds submitted to President Gilman last year. See further report of your special committee, *July* 16th, 1872, (the *apportionment* of land may require modification) recommending

"That an annual appropriation of \$500 be made for the purchase of seeds, etc., of our indigenous vegetation, for home use, exchanges, etc.

"That an annual appropriation of \$500 be made for the purchase and introduction of fruit trees not existing in this State.

"That a greenhouse and small propagating house be erected.

"That a competent gardener be appointed.

"That it shall be the duty of the Professor of Agriculture to superintend these operations, etc."

To this I would add, that I consider it important not to lose another season of growth, and that the labor of students be utilized with a view to confer skill in the pursuits of Agriculture and Horticulture.

2d. The employment of experts in special cultures, as the vine, silk, fish, in Veterinary Science, Agricultural Entomology; and the Mechanics of Agriculture, to give from three to fifteen lectures annually on each of the above specialties.

3d. The holding at the University of an annual Farmers' Institute, for discussions and comparisons of views and methods, as has been done at other agricultural colleges (especially Illinois; see State reports). It has been my aim, in carrying out the spirit of your resolution of 1870, to draw the attention of agriculturists to the University as their intellectual center.

Through what I believe has been considered a wise and liberal policy on the part of the Board, I have been able to study the agriculture of California with considerable detail, and to form an opinion of what agricultural education should be here. Our products are so varied and our opportunities so great, that we shall in time require much more instruction than the University can furnish. I would advise that we limit ourselves at Berkeley to the practical illustration of the subjects theoretically taught.

During the prolonged visit of Marshall P. Wilder, Downing, etc., to this Coast, I had the benefit of his judgment and experience. He thought our grounds were well adapted to exhibit our horticultural possibilities. He said: "There is no reason why your Agricultural College should not draw students from every part of the country, and furnish a complete series of object lessons for the most advanced scholars."

*To the best of my knowledge and belief*, we should have as many agricultural students in proportion to our population as the statistics of other agricultural colleges show, if the means at your command had enabled you to carry out the provisions of the Organic Act.

All the above recommendations are made *on the supposition that the appropriations asked for by the memorialists are made*, and that "they do not expect this to be accomplished at once," but to be "reached with proper economy and dispatch."

Respecting "Statements in regard to Agricultural Education in the Memorial," etc.

The only questionable statement, as far as I know, is contained in this paragraph: "We find that of the monthly appropriation (\$6,000) for the regular expenses, only *one-twentieth* is now devoted to the Agricultural Department, and that one Professor is now discharging all the duties of instruction on the subjects specially relating to it." Mr. Baxter, one of the memorialists, explains that they simply state that our special Agricultural Instruction employs one Professor and one-twentieth of the funds; *not* that the Agricultural students do not share the instruction common to all the colleges. This should have been more explicitly stated. Thus understood, the statement is correct.

In conclusion, I would say, that whatever differences of opinion may exist with regard to the scope of Agricultural Education, I am

convinced that there has never been a time when the sentiments of the people of the State, expressed through effectual organizations or otherwise, were so favorable to the University in all its departments. Of this, the last clause of the memorial is sufficient proof.

Respectfully yours,

EZRA S. CARR,

*Professor of Agriculture.*

OAKLAND, February 26th, 1874.

#### INSTRUCTION ON SUBJECTS RELATED TO MECHANIC ARTS.

The term "Mechanic Arts," as used in the Congressional Grant of 1862, has been generally considered to mean the various branches of human industry which are closely dependent on the progress of exact knowledge. Mechanism and machinery, the application of power to the production of material things, are founded upon the sciences of Mathematics, Physics, and Theoretical Mechanics. There is no good polytechnic school, or higher school of mechanics, in which these underlying subjects are not taught. They have received full attention in the University of California. The apparatus has been new and good; the courses of instruction have been comprehensive and extensive; the effort has been made to teach principles with thoroughness, and at the same time to show, as far as possible, the application of these principles to the various industries of society. It is true, that there are no shops connected with the University, nor is it certain that any can be successfully attached to the institution without incurring very large expense. But there are abundant opportunities in the neighborhood of the University—especially in San Francisco—to witness the great industrial undertakings, and to study the actual condition of mechanical enterprise.

The Engineering studies of the University are closely related to the Mechanic Arts. These studies are not restricted to the measurement of land and the survey of the country, but they include the strength of materials, the principles of construction, the work of the architect and builder, the supply of water, and the control of water-power, drainage and sewage, the development of mines,

and a score of other topics, in which the application of mathematics to strong and solid structures is involved.

The work of this department has been thus set forth. It will be noticed that in addition to the regular teachers, gentlemen who are expert in specialties are ready to co-operate with the University.

#### CIVIL ENGINEERING.

The course in Civil Engineering is so arranged as to meet the wants both of those who wish for a four years' course, (including other scientific and literary studies, and leading to the degree of Bachelor of Philosophy) and also of those who wish merely to pursue special studies in Engineering. Arrangements are likewise made for the advanced instruction of graduates of this and other institutions, who may, if they desire it, become candidates for the degree of Civil Engineer.

For the four years' course, the requirements are fully stated in the *University Register*, where the mathematical, scientific, and literary studies of the entire course are also enumerated. Students who pursue this course, (which is recommended to all who can take the time) begin their Engineering studies in the third or junior year.

Special studies of Engineering must satisfy the Professors that they are familiar with Algebra, Plane and Solid Geometry, Plane and Analytical Trigonometry, Spherical Geometry and Trigonometry, and Analytical Geometry and Descriptive Geometry, which are the mathematical studies pursued in the earlier part of the four years' course, and are essential to higher studies.

The special engineering studies begin with the Surveying Course, which can also be taken by those persons not desirous of other instruction in Engineering, provided they are familiar with the before-mentioned mathematics, not including Analytical Geometry nor Descriptive Geometry.

The Course includes Land Surveying, with chain alone, with compass, theodolite; Hydrography, Road and Railroad Surveying. Simultaneously, the study of Differential and Integral Calculus is pursued.

The theoretical instruction of the class room is continually sup-

plemented by practical exercises, surveys, etc., in the field, and by excursions for making itineraries, sketches, and general views of sections of the country, etc.

In the following year, the properties and strength of building materials are discussed and investigated. Stone-cutting, Isometrical Projections, and Working Drawings for constructions of Masonry are included; and this is followed by instruction in Framing and Bridge Building, and in the Mechanics of Engineering.

The plotting of and working up of the field notes, surveys, etc., made during the practical exercises of the year, will be completed in connection with the other instruction of this department.

Advanced students take up the subjects of geodetic and hydrographic surveys, with construction of maps of extensive tracts of country, river, lake, and harbor improvements; drainage of cities and districts; analyses and discussions of the most remarkable engineering constructions; original plans and estimates, and solution of practical problems.

In addition to the Professors at Berkeley, Professor George Davidson, Chief of the United States Coast Survey on the Pacific, will instruct the advanced students in the methods and instruments employed by the United Coast Survey, in the determination of longitude by telegraph, and in certain astronomical problems.

Mr. Wm. Hammond Hall, Engineer of the Golden Gate Park, San Francisco, will illustrate in the office and in the field some of the principles and methods of Landscape Engineering.

Mr. James D. Hague, Mining Engineer, will instruct the class in the methods of Mining Engineering, as shown in the mining works of the Comstock lode, as described by him for the United States Government in the "Mining Industry of the Fortieth Parallel."

Prof. Charles F. Hoffman, Topographical Engineer of the State Geological Survey, will explain to the class the topographical work of the California Survey.

Illustrative models, diagrams, etc., are employed to facilitate instruction, and the course will be made as practical as possible by the investigation of hypothetical cases, the solution of original problems, and by excursions to prominent engineering structures

within reach, such as the Navy Yard, public buildings, the dry dock forts in the harbor of San Francisco.

As an illustration of the exact worth of this branch of the University, the examination paper is appended for a single term, on the subject aforesaid. Other subjects are treated with like fullness.

1. According to Mr. Scott Russell's formula, what will be the resistance to motion of a train of cars weighing 150 tons, with a frontage of 75 feet, moving at 20 miles per hour over a straight and level road? What will be the *total* resistance of a 20-ton locomotive, when drawing the above train?

2. A locomotive weighing 18 tons, with a tender of 12 tons, can move a train of 400 tons at 12 miles per hour on a straight and level road. What load can it draw up an ascent of 14 feet to the mile, at the same rate of speed?

3. Make a drawing of the plain, elevation, and cross-section of a railway having continuous bearings, combined with cross-ties. Compare this system with that employing supports at intervals.

4. What is the principle upon which atmospheric railways depend for their power? What is the chief obstacle to be overcome in their construction? What are their advantages and disadvantages?

5. When are tunnels necessary in railroad construction? Deduce a formula giving the depth at which a cutting should change to a tunnel.

6. What are the causes of the increased resistance to motion on railroad curves? To what is this increase assumed to be proportional? If the total curvature in the Central Pacific Railroad amounts to  $27,480^\circ$ , to what additional length of road is it equivalent.

7. *Discuss* the tractive power of a locomotive as limited by adhesion. How may it be increased? What would be the limit, from this cause, of the tractive power of a locomotive weighing 20 tons,  $\frac{2}{3}$  on the driving wheels, 4 in number; if the train was to ascend an incline of one in seven  $= 8^\circ \frac{1}{4}$ ,  $\text{nat. sin.} = .14349$ ? What would be the loss of power with a horse? Why?

8. What is the scale of declivity of a line? What is its use; and how is it constructed? State the same with regard to a plane.

9. Describe the *geometrical* formation by cylinders, of the soffits of the groined, and the cloistered arches. How are the centers, or supports of their masonry, constructed, knowing the diameters of the soffits?

10. What are the advantages possessed by straight over curved lines of railways? What is the maximum expenditure justifiable in straightening a railway? What are the recommendations of curves? How do the traffic and character of the engines on a road determine the depths of its cuttings and embankments?

#### FURTHER PLANS FOR INSTRUCTION IN MECHANIC ARTS.

To popularize the work of the University, the Regents instituted, at the begining of their work, six courses of lectures in San Francisco, adapted, as far as possible, to the needs of intelligent mechanics, teachers, and others, who are there desirous of adding to their knowledge of modern science. Five of these courses have been given, and have been well attended by those for whom they were designed.

It was not supposed that these courses would do more than serve a temporary purpose, but it was hoped that they would lead to the foundation in San Francisco of a Polytechnic School, or School of the Useful Arts. During the present winter, a member of the Board of Regents, who has taken the liveliest interest in this branch of education, and who appreciated the incompleteness of what is now doing, secured from a number of gentlemen the guarantee for two years of a sum of money sufficient to begin a school of this sort, on a comprehensive foundation, independent of, and yet affiliated with, the University.

As the result of much thought and consultation, the following scheme was proposed and approved by the parties interested in the project:

1. Let the donors give their money to three or five Trustees, who shall dispense and account for all sums paid out, and manage the whole enterprise.

2. Let a Council of seven men advise these Trustees as to the best mode of executing the details of the plan.

3. Let a man of scientific education, who is also acquainted with the industrial applications of science, and who is in hearty sympathy with the desires of the common people, be made the Director of the School.

4. Let him, with the approval of the Trustees, select assistant

teachers, from five to ten in number, to give instruction in the various branches of industrial science and art.

5. Let the Trustees provide also for popular lectures, illustrated as far as possible, before small and large audiences, on the most recent and useful discoveries adapted to the wants of common life.

6. Let the instruction be given in evenings, at early morning hours, or holidays, in vacations; and let it be given in short courses running through a certain number of weeks or months, so as to supplement as far as possible the public schools, and all other existing institutions.

7. Let rooms be hired in central and convenient places, adapted for lectures, class-rooms, and work-shops; and let them be equipped with a moderate amount of implements, tools, and apparatus.

8. Let special provision be made for instruction—

(a) In Chemistry, as it relates to metal-working, assaying, electro-plating, bleaching, dyeing, and other branches of manufacture.

(b) In Mechanics, in relation to the principles of the steam-engine, the turbine, the hydraulic press, the loom, the lathe, and other mechanisms.

(c) In Industrial Drawing, especially as it relates to the construction of buildings, machines, engines, etc.

(d) In the study of the Earth and its resources, especially in the study of California, its climate, mineral wealth, vegetation, commerce, etc.

(e) In Domestic and Political Economy, the conditions of social and individual happiness.

9. Let the Trustees and Council especially seek the co-operation of the University of California, and the Mechanics' Institute of San Francisco, so as to utilize as far as possible, the professors, the apparatus, the museums, and the libraries already provided.

#### CHEMISTRY.

Chemistry, like Natural Philosophy, is indispensable in any course of instruction which relates to the Mechanic Arts. Metallurgy, Assaying, Agriculture, and almost all departments of manu-



facturing industry, are more or less dependent upon the progress of chemical knowledge. This subject has, therefore, received from the Board full consideration, and the laboratories provided at Berkeley are, in all respects, admirably adapted for instruction in this fundamental science.

Instruction is given in general and theoretical chemistry by lectures, recitations, and laboratory practice. This course extends through three terms; one in Freshman year, and two in Sophomore year; and embraces the elements of inorganic and organic chemistry. Students, after making themselves familiar with the details of experiments, are required to repeat the same in the laboratory for elementary chemistry.

An advanced course of lectures will be given to students of the Junior and Senior Classes in general and theoretical chemistry. This course will embrace a discussion of the general principles of the science, and their application to analytical and metallurgical chemistry, and to mineralogy.

The chemical laboratories will be opened daily for instruction in analytical chemistry.

The course of instruction in qualitative analysis will include the analysis of simple and complex substances in the wet way, their analysis by the use of the blow-pipe and flame reactions, and the determination of minerals with the blow-pipe. Students will be required to keep a careful record of their work, and to submit the same to the inspection of the Professor. Upon passing a satisfactory examination in qualitative analysis, students may pass to the quantitative laboratory.

In the quantitative laboratory, instruction will be given in the quantitative gravimetric analysis of simple and complex salts, minerals, ashes of plants, mineral waters, etc.; in volumetric analysis, including acidimetry, alkalinimetry, chlorimetry, etc.; in organic analysis; in gas analysis; in the preparation from inorganic and organic compounds, and in the carrying out of original investigations.

Students taking the course of chemistry will be expected to spend at least fifteen hours a week in the laboratory during Junior year, and twenty hours a week during Senior year.

Students who, for satisfactory reasons, do not wish to take the

full course, may enroll themselves with the Professor of Chemistry as special students. Students wishing to take a post-graduate course will find an abundant opportunity for pursuing their studies.

Every opportunity possible is made use of to give instruction in those branches of chemistry which have a practical application to the arts.

A room for the study of photography, in connection with the chemical laboratory, will be opened as soon as the necessary apparatus can be supplied.

Practical instruction in electro-metallurgy will be given to such students as desire it.

So far as practical, students will be employed in the preparation of chemicals used in the laboratories; the object being to give them as much practice in manufacturing chemistry as is possible.

Special training in the analysis of mineral waters will be given to such of the advanced students in chemistry as may desire it.

Careful lists of waste products, minerals, etc., which may be utilized, will be kept, and students instructed in methods of saving them.

## RESPONSE TO THE SECOND INQUIRY.

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### MANAGEMENT OF THE AGRICULTURAL COLLEGE LANDS.

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“*Second.* What has been the management by the Regents of the 150,000 acres of Agricultural Lands donated by Congress to the State of California ; whether the same has been defective or not ; and if defective, wherein such defect has existed, and what is the cause as well as the remedy of such defects ?”

By the Organic Act creating the University, the Board of Regents were invested with full powers to locate and sell the Agricultural College Lands “for such price, and on such terms only, as they shall prescribe.”

The first step taken by the Board for the sale of these lands was the passage of the following resolution, on the twenty-seventh of August, 1868.

“*Resolved,* That warrants be prepared in such manner and form as the Law Committee may decide to be legal and proper, authorizing the holder to locate one hundred and sixty (160) acres of land, as a portion of the 150,000 acres granted to this State by the Act of Congress of July 2d, 1862 ; that these warrants be numbered from No. 1 to No. 60, inclusive ; that a minimum price be fixed by the Board of Regents, and that the Secretary be then authorized to invite proposals for the purchase of these warrants by advertisement for thirty or sixty days.”

At the same meeting, the minimum price of these lands was fixed at \$5 per acre, in gold coin. After full advertisement, no bids were received for the purchase of these land warrants.

On the tenth of November, the Board authorized the Secretary to sell, at private sale, the 9,600 acres previously advertised, at a price not less than \$5 per acre in gold coin.

Under this authority, but four warrants, calling in the aggregate for 640 acres, were sold.

It soon became apparent that the lands could not be sold, through the medium of land warrants, at \$5 per acre, all cash.

On the second of March, 1869, the Board received a proposition from a responsible party to purchase the entire grant of 150,000 acres at \$3.50 per acre in gold.

This proposition was declined.

Finding all efforts to dispose of the lands by sale of warrants, and by private contract, unavailing, and the area of desirable public lands, subject to location, rapidly diminishing, the Board entered into a contract with three experienced surveyors and land experts, (Messrs. John C. Hays, G. Howard Thompson, and H. A. Higley) authorizing them, as locating agents of the University, to locate the 150,000 acres of land—they to receive for their compensation a percentage upon the price per acre for which the lands might be afterwards sold, and they to pay all the expenses of location.

This step, it will be observed, contemplated the obtaining of title to certain fixed tracts of land, and holding the same for a market.

Under this contract, several thousand acres of land were located in the Tulare Valley; but as they were subsequently, for good reasons, abandoned, no progress was made thereby in the disposition of the grant.

On the eighth of October, 1869, the Board appointed H. A. Higley Land Agent of the University, with authority to sell the College lands at \$5 per acre in gold coin, of which twenty per cent. should be paid in cash, and a credit allowed for the remaining eighty per cent., with interest on the unpaid balance, payable in advance, at the rate of ten (10) per cent. per annum.

Even on these favorable terms, but slow progress was made in the disposition of the lands. The sales languished, and finally almost ceased; while the available public lands were becoming rapidly absorbed by pre-emption, by railroad grants, and by location of the cheap college scrip of other States, and of other land scrip of various kinds.

Unless further legislation could be obtained, it was apparent the grant could not be sold at \$5 per acre in coin.

The Regents set themselves to work, with zeal, to procure such further legislation from Congress. With that view, they drew up the *projet* of a bill, which they transmitted in December, 1869, to

our Senators and Representatives in Congress, and asked their influence to procure the passage of the same.

This bill contained special privileges to be conferred upon the State of California, in the manner of locating its grant—and on this account strong opposition was made to its passage.

It was not until March 3d, 1871, that the bill was finally passed by Congress, and this only through the extraordinary efforts made by the Regents, backed by the united influence of our Delegation in Congress.

This bill provided, among other things :

1st. That the State should have the right to make its selections “from any lands within its limits, subject to preëmption, settlement, entry, sale, or location, under *any* laws of the United States,” thus removing many restrictions, and greatly enlarging the area for location.

2d. Permitting the State to make a selection for the smallest legal subdivison, to wit : for forty acres. This was a valuable privilege, as prior to the passage of this Act, the smallest tract that could be located was one hundred and sixty acres, and the regulations of the General Land Office required that even this amount should be a technical quarter-section. It would not permit the location of two eighty acre tracts, though adjoining, if in separate quarter-sections.

Under the operation of this provision, three hundred and forty-one separate applications have been made for tracts of forty and eighty acres each.

3d. Under the law, as it formerly existed, in case lands were selected within the limits of a railroad reservation, commonly known as double minimum lands, the State was compelled to surrender two acres of its grant for every acre located, and the purchaser was therefore compelled to pay \$10 per acre. This practically put a stop to the sale of double minimum lands.

The new law, in such a case, permits the State to select lands within a railroad reservation, acre for acre, paying to the United States the sum of \$1.25 per acre for each acre so selected. The effect was to reduce the price of such lands from \$10 an acre to \$6.25 per acre.

But the most important provision of the Act was the following :

“That where lands sought to be selected for the Agricultural College are *unsurveyed*, the proper authorities of the State shall file a statement to that effect, with the Register of the U. S. Land Office, describing the land by township and range, and shall make application to the U. S. Surveyor-General for a survey of the same. \* \* \* \* He shall, as soon as possible, have the said lands surveyed, and the township plats returned to the U. S. Land Office, and lands so surveyed and returned shall, for thirty days after the filing of the plats in the U. S. Land Office, be held *exclusively* for location for the Agricultural College; and within said thirty days the proper authorities of the State shall make application to the U. S. Land Office for the lands sought to be located by sections and parts of sections: *provided*, that any rights, under the preëmption or homestead laws, acquired prior to the filing of the required statement with the U. S. Register, shall not be impaired or affected by this Act.”

Under the operation of this Act, a demand for the college lands rapidly sprang up, and through its instrumentality the entire grant has been disposed of on the terms fixed by the Regents.

### *Terms of Sale.*

The rate charged is, for single minimum lands \$5 per acre, and for double minimum lands \$6.25 per acre, in gold coin.

On the latter, however, the Regents are required to pay to the U. S. Receiver \$1.25 per acre, in addition to the surrender of an acre of their grant. The Regents receive this \$1.25 per acre from purchasers, in gold, and pay it in currency to the Receiver; thus realizing a profit of about 12½ cents per acre, over and above the fixed price of \$5, to assist in defraying the expenses of administration.

The Act of Congress making this grant requires that the State shall pay all such expenses.

### *Credit Allowed.*

If purchasers prefer, they are permitted to pay twenty per cent. (20 per cent.) or \$1.00 per acre in cash, and are allowed a credit

for the remaining eighty per cent. (80 per cent.) or \$4.00 per acre, the unpaid balance bearing interest at the rate of ten per cent. (10 per cent.) per annum, payable in advance.

Each applicant is required to sign an agreement that he will pay in full, after the expiration of five years from the date of his application, and after one year's notice, when demanded by the Land Agent; and if all the conditions of the agreement are not complied with, then the lands to revert to the University without suit, and any approval of the application to become null and void. In the case of double minimum lands, surveyed, it was, at first, the practice to exact of the purchaser but \$1.25 per acre, or 20 per cent. of \$6.25, (the price per acre) the hope being indulged that the Federal Government might be induced to remit to the University the payment of the excess of \$1.25 per acre, required to be paid on this class of lands.

This hope was dissipated some six months ago by the instructions of the Commissioner of the General Land Office, notifying the U. S. Land Offices for California, that title would not be made to the State for double minimum lands unless this excess of \$1.25 per acre was prepaid.

Since that time the Regents, have required from purchasers a cash payment of \$2.25 per acre on such lands—being \$1.00 or 20 per cent of \$5.00, for the University, and \$1.25, the excess to be paid to the Federal Government.

Parties are allowed to pay up, in full, either at the time the Regents are prepared to make title to them, or at any subsequent time.

It should be borne in mind, that in all cases the title to these lands is obtained in the name of the Regents of the University, and remains in their name until full payment is made. Then, and not until then, title is issued by patent to the purchaser.

When parties avail themselves of the credit allowed, a certificate of purchase is issued to them after they have paid up 20 per cent. of the price—interest in advance from the date of approval of their location by the Land Agent, to the succeeding first of January, and \$8.00 fees. These fees are paid into the Treasury of the University at the time the certificate of purchase is issued, and with other items of revenue, which will be explained by and by, realize

a sum more than sufficient to defray all the expenses of administration.

For some time, purchasers were not required to pay the twenty per cent., or first installment, until the Land Agent had obtained title, in the name of the Regents, for the lands sought, and notified the applicant of that fact. But experience soon showed that this practice was unwise. It left it to the option of the applicant to take the lands or not, as convenience or interest might dictate, without apprehension of loss from failure to fulfill his contract. The rule was, therefore, speedily established, that the applicant should give security to the extent of \$1 per acre, at least, that he would take and pay for the lands, if the Regents should succeed in procuring title to same.

He is now required, as a condition precedent, to furnish the Land Agent with a certificate of deposit, which, on its face, shall state that he has deposited an amount equivalent to one dollar (\$1) per acre, to the credit of the Regents of the University, payable when endorsed by said Regents. This, bear in mind, is not a payment, it is only a security; and is held by the Land Agent until the Register of the Land Office accepts or rejects the application.

If the application is accepted, the certificate of deposit is endorsed by the Regents, and then, for the first time, it becomes a payment. It is paid to the Treasurer of the University, and becomes a part of the Land Fund.

If, on the other hand, the application is rejected by the U. S. Register, the certificate is endorsed by the Regents back to the order of the depositor or applicant, and this is the end of the transaction.

Sometimes an application is accepted for part of the lands applied for, and rejected for another part. In this case, the original certificate is subdivided into two new certificates, one of which is endorsed to the order of the applicant, and the other paid into the Treasury of the University.

This statement covers the whole financial system.

### *Precautions Taken to Protect Settlers.*

In the management of this Grant, it has been the anxious desire of the Regents throughout, to avoid all contests with bona fide



occupants of land, even though said occupants, through neglect or ignorance, may have taken no steps to perfect their equitable rights

It is, of course, impracticable for the Land Agent to examine each of the numerous parcels of land applied for. He cannot know, of his own knowledge, therefore, whether parties other than the applicants have made improvements thereon or not; but, under the instructions of the Regents, he takes all reasonable precautions to ascertain the fact.

Before an application is received, the applicant is required to subscribe and swear to the following Affidavit, before some officer competent to administer an oath.

“I, \_\_\_\_\_, of \_\_\_\_\_ County, State of California, being duly sworn, depose and say that I am a citizen of the United States, and a resident of the State of California, of lawful age; that to the best of my knowledge and belief, there are no legal or equitable claims of any kind to the above described land, nor any occupation of, nor any improvements upon the same, under any legal or equitable title other than those of the applicant; and that the above described lands are not timbered lands, and that each legal subdivision in the above described tracts is more valuable as agricultural than as mineral land.

Subscribed and sworn to before me, this \_\_\_\_\_ day of \_\_\_\_\_, 187-.

\_\_\_\_\_  
\_\_\_\_\_

Witness my hand \_\_\_\_\_  
\_\_\_\_\_.”

If the lands should happen to be timbered, the clause “and that the above described lands are not timbered lands” is stricken from the affidavit. In such cases, special arrangements are made, which will be explained presently.

With this affidavit in hand, the Land Agent then applies to the Register of the U. S. Land Office for the District in which the land is situated, to locate, in the name of the Regents of the University, as part of the Agricultural College Grant to California, the parcel

of land, described by section, township, and range, which the applicant desires to purchase.

Even though upon the books of the Register the land appears free and open to location, he retains the application of the Regents for ninety days after its receipt, in his office, without action. This, to give any party having equitable claims to said land an opportunity to make his entry, and prove up his claim. If, at the expiration of ninety days, no counter claimant appears, the Register accepts the application on behalf of the University, notifies the Department in Washington of such acceptance, and also the Land Agent of the University.

The latter, even then, does not issue title to the applicant, but as a measure of extra precaution, to give equitable claimants, if any, every possible opportunity to secure their rights, retains the Register's acceptance still thirty days more in his hands.

If, at the expiration of that time, no other claimant appears, a certificate of purchase is issued to the applicant.

From this statement, it will appear that the shortest time in which an applicant can procure title is four months from the date of his application—in practice, it is oftener six months. We respectfully submit, that having due regard to the efficient management of this Grant, it is impossible for the Regents to adopt any more effective precautions to protect the rights of unknown counter claimants. It has been their policy and their practice, as long as the matter remains subject to their control, which is up to the time of the approval of a location by their Land Agent, (after which a contract exists which they cannot invalidate) to abandon, whenever they can do so, in justice to the applicant, any and every location, where a claimant appears with even a faint show of equitable right.

### *Timbered Lands.*

In case the lands applied for are timbered, the purchaser must either pay in full; or, if he claims a credit for eighty per cent., he must, before title is issued to him, furnish a bond with approved sureties, to secure the payment of the unpaid balance.

### *Unsurveyed Lands.*

The University has since the passage of the Act of March 3, 1871, had the right to locate upon unsurveyed lands.

At the inception of their administration, no deposit was exacted from applicants for this class of lands, but they were informed that applicants for surveyed lands would always be preferred, even though later comers, and that we should not hold ourselves bound to furnish them title if the Grant should be exhausted at the time their survey might be completed.

Availing themselves of their privilege, parties two or three years ago applied for more than 200,000 acres of unsurveyed lands—some of them for very large tracts. These applications are, now, of no practical interest, as the parties have never taken steps to have the lands surveyed, and as the Grant is now exhausted, they could not obtain title if they were to show that the surveys have since been made.

Under the Act of Congress, approved March 3d, 1871, the Regents obtained the right to secure title to unsurveyed lands, by applying to the U. S. Surveyor-General for an order of survey, and notifying the Register of their intention to locate such lands, describing them by township and range.

Under the law, this gives them the exclusive privilege of locating the lands applied for, for a period of thirty days after the plats of survey are filed in the Register's office.

All parties applying for unsurveyed lands, under the provisions of this Act, have been for some time past required to furnish the same certificate of deposit to the credit of the Regents of the University, as in the case of applicants for surveyed lands.

In all such instances, it is believed the applicants are acting in good faith, and will take and pay for their lands when the surveys are completed.

### *Amount Realized.*

The total amount of cash received to date, as principal from the sale of College Lands, is \$114,025.47. Of this amount, \$79,709.96 is deposited by the Treasurer of the University in the Bank of Cal-

ifornia, bearing interest at the rate of six per cent. (6 per cent.) per annum. The remainder, \$34,315.51 was temporarily invested in the purchase of four full blocks, with extensive improvements, in the heart of the growing city of Oakland—being the property formerly owned by the College of California and the Brayton Estate. This property is subject to a mortgage of \$50,000, bearing interest at the rate of nine per cent. per annum.

It has cost, to date, including \$11,386.25 paid as interest on the mortgage, the sum of \$112,476.25, and is valued by the most competent experts at a minimum of \$150,000. By many it is rated even higher.

Since the removal of the University to Berkeley, this property is no longer essential. It is growing in value, however, year by year. Should it be deemed best to dispose of it, it will realize a sum, say \$150,000 at least; sufficient to pay off the mortgage of \$50,000, to repay the land fund the \$34,315.51 borrowed, and leave a surplus of \$65,684.49, yielding in the shape of profit a far larger interest upon the amount of the land fund invested, than could possibly have been derived from any ordinary safe investment.

Only the interest upon the principal of the land fund can be used for the payment of current expenses. The total interest collected to date, on this account, is \$32,221.57.

## EXHIBIT.

The following is a detailed exhibit, showing the number of acres of Agricultural Lands sold, and the amount received therefor :

9,694 acres land sold at \$5 per acre .....	\$ 48,470 00	
346 74-100 acres sold at \$6.25 per acre .....	2,167 15	
21,436 66-100 acres sold at \$5 per acre, upon which 20 per cent. was paid, and balance on time, bearing 10 per cent. interest per annum .....	21,436 66	
15,034 86-100 acres sold at \$6.25 per acre, upon which 20 per cent. was paid, balance on time, bearing interest at 10 per cent. per annum .....	18,703 41	
4,031 65-100 acres sold at \$5, upon which 20 per cent was paid, and balance afterward paid in full .....	4,031 65	
Balance 80 per cent. subsequently paid on same .....	16,126 60	
480 acres sold at \$6.25 per acre, upon which 20 per cent. was paid, and balance afterward paid in full .....	600 00	
Balance 80 per cent. on same .....	2,400 00	
		114,025 47
From interest on amounts due from sales of land .....	32,221 59	
From land fees .....	2,544 00	
From excess payments .....	4,760 87	
		39,526 46
		<u>\$153,551 93</u>
Total number of acres sold .....	51,023 91-100	
Total payments .....	114,025 47	
Add for interest and land fees ...	34,765 59	
		<u>\$148,791 06</u>
Balance of 80 per cent. due on sales @ \$5 .....	75,889 12	
Balance of 80 per cent. due on sales @ \$6.25 .....	74,774 46	
		<u>\$299,454 64</u>

In addition to these lands sold, and for which title has been issued, applications are on file, and pending the decision of the United States Land Registers, for 81,093 acres of surveyed lands, and 13,480 acres of unsurveyed lands.

The parties applying for these lands have deposited one dollar an acre in bank, to the credit of the Regents of the University, and certificates of deposit to the amount of \$94,573 are now in the hands of the Land Agent.

### *Recapitulation—Condition of the Grant.*

No of acres sold, for which title has been issued . . . . .	51,023.91
Applications for Surveyed Lands pending in hands of U. S. Registers, on which deposit has been paid . . . . .	81,093.00
Unsurveyed lands applied for, and awaiting survey, on which deposit has been paid . . . . .	13,480.00
	<hr/> 145,596.91
Number of acres selected by Locating Agents, and for- feited by applicants—now the property of the Uni- versity . . . . .	8,840.75
	<hr/>
Total . . . . .	154,437.66
Applications filed (without deposit) for unsurveyed lands, say for— . . . . .	210,000.00

It will thus be seen that we have apparently over-sold our grant to the extent of 4,437.66 acres; but more than this amount will doubtless be rejected by the United States Registers, in cases of contest now pending before them.

Under these circumstances, we have declined to receive any more applications.

Until the Registers report upon our applications now in their hands, we cannot know exactly for how many acres located, we can obtain title.

In conclusion, we think we can justly claim the credit of having sold these lands to the best possible advantage. Our management certainly compares favorably with that of other State Boards, and officers having control of the several land grants made by Congress to the State of California. Of the 500,000 acres donated for internal improvements, and afterwards devoted to the support of public schools, but a portion was sold in the shape of land warrants, for \$2 per acre, the remainder for \$1.25 per acre, or an average, say, of \$1.62½ per acre.

The 16th and 36th school sections, and the so-called lieu lands, also the Seminary and Public Building lands, were sold by the State at \$1.25 per acre, and the swamp lands for \$1.00, while we, entering the field, substantially, not until the year 1871, by which time desirable public lands, subject to location, had been closely

gleaned, have so managed as to sell, or contract to sell, our entire grant of 150,000 acres at \$5 per acre in gold coin, net!

There is not, so far as we are informed, another State in the Union that has sold her Agricultural College Grant for one-fifth as much as we have obtained. Some States sold their College lands as low as forty cents, others for fifty cents, and a few of them as high as seventy-five cents per acre in currency—the average price for all of them does not probably exceed sixty-two and a half cents, currency, per acre.

So much in answer to the inquiry relative to the Agricultural Land Grant.





## RESPONSE TO THE THIRD INQUIRY.

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### HOW THE REGENTS HAVE ADMINISTERED THEIR TRUST.

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“*Third.* Whether or not the Regents of the University have properly administered the funds of the University which have been entrusted to them; and if not, in what particulars.”

The Organic Act creating and organizing the University of California was approved March 23d, 1868. The Regents organized on the 9th of June, 1868. Since then, nearly six years have elapsed, and they propose to render an account of their stewardship. At the outset, the prospect was not encouraging. All they possessed to represent a University, was an uninhabited site at Berkeley. Everything had to be created.

It was necessary, at the very start, to secure a corps of Professors of ability and reputation, for it was clear that men of moderate attainments—cheap men, picked up hap-hazard—could never build up an institution of grade so high as to bring back the youth of California from Harvard, and Princeton, and Yale, and other eastern colleges of note, to which they had been in the habit of resorting in search of the higher culture; or failing to recall those already gone, at least to retain those looking for a University education.

The Regents devoted much time and anxious consideration to the selection of a proper Faculty; and after the lapse of six years, they have cause for congratulation that they succeeded so well. The Professors, as a body, are men of the highest attainments; some of them with a national reputation. They are devoted to their profession—zealous in the discharge of their duties, and anxious to establish such a name for our University, that no young Californian need go farther in search of the highest learning. We venture to assert that but few institutions—and those few only from their splendid endowments—surpass us in the range and variety of the curriculum, and in the high character of the instruction imparted.

An examination of our latest "Register" will show that almost every branch of useful learning is taught in our University, so far as the same can be compressed into so brief a period as a four years' course.

Next to the securing of an able Faculty, the most important step was to obtain suitable accommodations. Thanks to the generosity of the old College of California, we secured the use of their grounds and buildings in Oakland, where the law permitted us to locate the University temporarily, until it could be established on its permanent site at Berkeley. The Regents obtained the free use of these buildings on condition that they would organize the College of Letters with a full course, so that such of the students of the College as might desire, and should be found qualified, might proceed with their studies in the University.

The University was first opened on the twenty-third of September, 1869, with an attendance of forty-two students, most of whom had belonged to the four classes of the College.

At a later date, negotiations were opened with the Trustees of the College of California, which resulted in the transfer to the Regents of all their property and assets, on condition that they (the Regents) should pay their liabilities. This property consisted of an entire block, with commodious buildings, in the heart of Oakland; a large number of valuable homestead lots at Berkeley; one hundred and twelve acres of so-called "mountain land," in the same neighborhood; all the College Water Company's rights: the whole estimated to be worth \$80,000.

The liabilities of the College, assumed and paid by the Regents, over and above the cash since received from the sale of a portion of the assets, amounted to \$49,030.04.

On the 11th of November, 1870, the Board authorized the purchase of the so-called Brayton Property, in Oakland, consisting of two full blocks, with the valuable and extensive buildings thereon, together with the furniture therein. On this property a mortgage of \$50,000 existed. In payment, the Regents assumed the mortgage (on which the interest was subsequently reduced to nine [9] per cent.) and transferred to the vendors the outside property, valued at about \$30,000, adjoining the University site at Berkeley, which had been obtained from the College of California.

The property was thus obtained without any additional cash expenditure.

Later, a third block was bought of the Brayton Estate for the sum of \$20,000, thus completing, with the block obtained from the College of California, the quadrangle of four blocks, situated between Twelfth and Fourteenth, Franklin and Harrison Streets, in the city of Oakland.

This entire property was occupied by the University up to the 16th of July, 1873.

The purchase has proved profitable to the State. It saved the heavy rent that we should have been obliged to pay for so extensive a property, and, practically, gave us ample accommodations—rent free—for a period of four years.

Nor is this all. The property has enhanced materially in value, and is now worth many thousands of dollars more than it cost, including the interest paid on the mortgage.

The Board of Regents took steps, at an early day, to erect the necessary buildings for the University, on the permanent site at Berkeley. In view of the searching and exhaustive investigation recently made by Committees of the two Houses of the Legislature, we shall not attempt to set forth the action of the Board in detail.

The Regents first attempted to build the College of Agriculture out of the funds derived from the sale of the Tide Lands paid to them by the State, by days' labor; but finding, after the expenditure of \$54,500.72 on the granite basement, that the structure would cost too much, and that their means would not permit them to complete it, they suspended work.

By the Act approved April 1st, 1872, the Legislature appropriated \$300,000 for the construction of University buildings at Berkeley. A contract was subsequently made for the completion of the Agricultural College Building, for the sum of \$126,000, an amount considered quite reasonable by experts best competent to judge. The building has cost, altogether, about \$200,000. It is, we believe, one of the best—if not the very best—constructed public buildings in the State. It is finished in excellent style, and may be expected to endure for generations.

Originally, it was designed to put up a second building, to be called the College of Letters, of the same substantial and permanent character, built of stone, brick and iron. Two considerations induced a change of plan :

1st, The brief time within which it would have to be constructed to be in readiness for occupation on the 20th of September, 1873 ; and,

2nd, The insufficiency of means.

The Regents were determined that one public building, at least, should be completed without exceeding the appropriation.

This necessitated a change of plan from stone, brick, and iron, to wood, with a brick basement. On the 13th of May, 1873, a contract was entered into for the construction of the College of Letters for the sum of \$83,750 ; and on the 6th September, just ninety-nine working days from the date of commencement, the building was completed, accepted and occupied.

Adding the expense of several important additions, not called for by the specifications, and deducting the saving effected by alterations and omissions, the amount paid the contractors reached \$87,468. The finish of the basement was not called for by the contract. For this, a further expenditure of about \$9,000 was made ; making the entire cost of the building, exclusive of the equipment, about \$96,468 in Controller's Warrants—equivalent, at the date of the issue of said Warrants, to about \$92,468 gold.

A Commission consisting of four able and experienced Architects and Builders, appointed by this Board to examine and report upon this building, have made a detailed estimate of its value in gold coin, as it now stands.

This they fix at \$90,600, which is but \$1868 less than the cash value of the Controller's Warrants paid for the completed building. Even a larger difference than this might be ascribed to the increased expense growing out of the rapidity of construction, called for by the contract. It is estimated that it would cost at least ten (10) per cent. more, to erect so extensive a building in ninety-nine days, than in one hundred and fifty or two hundred days. But, even if no allowance is made for this, the difference is not an unreasonable concession to the contractors, for their skill, labor, outlay of capital, and risk.

The Commission of Architects and Builders further report that the College of Letters is well built, and is admirably adapted for the purposes designed. Our own personal examination, and the testimony of President Gilman, and the Professors, confirm this. In addition, several distinguished visitors from leading Eastern Universities have expressed their unqualified admiration of the convenience and excellence of the accommodations provided. It would be out of place here to enter into closer details.

We submit, that the State has received the full worth of the money expended.

Here is a well-built and well-finished structure, 170 feet in length, with wings 65 feet in depth; four stories high, containing all the modern improvements, and situated five miles from the nearest source of supplies, that has cost, exclusive of the equipment, the equivalent of \$92,468 in gold. Had it been a private undertaking, we doubt if it could have been built for much less in the same time.

### *Management of the Finances.*

Excluding, for the present, the \$300,000 appropriated for the construction of buildings, which amount is paid directly out of the State Treasury, and not by the Regents, they have received from the State, in six years, for the use of the University, the sum of \$412,694.79. Besides this, they have received \$215,308.93 from the following sources :

From Sales of lands — Principal.....	\$114,025 47	
“ Interest on unpaid balances.....	32,221 57	
“ Fees from purchasers.....	2,544 00	
	<hr/>	\$148,791 04
“ Interest on daily balances in Bank.....		9,753 39
“ Tuition fees.....		1,720 00
“ Water rates.....		1,074 50
“ Excess payments on land to be paid to U. S.....		3,970 00
“ Bills Payable. (This is only a constructive, not an actual receipt, and is only introduced into the account to offset the mortgage of \$50,000, which is charged as an expenditure to the account of the Brayton Property).....		50,000 00
		<hr/>
Total.....		\$215,308 93

The total expenditures by the Regents, during their six years of service, exclusive, as before, of the amount paid directly by the State for buildings, have been \$548,293.76.

The principal items of expenditure have been :

For Salaries of President, Professors, and Officers.....		\$228,826 75
For Purchase of Real Estate, viz. : the Brayton Property, including the mortgage considered as paid, and all interest thereon.....	\$113,592 45	
For the College of California Property, including the block and buildings thereon, and 40 acres of land at Berkeley—part of the 200 acres forming the site.....	49,030 04	
For Amount expended on Water-works. ....	4,279 59	
	<hr/>	\$166,902 08

For Construction of basement of Agricultural College....	54,500 72
“ Ornamenting, grading and improving site at Berkeley.	21,151 05
“ Apparatus.....	18,974 91
“ Library.....	7,491 39
“ Equipment and repairs of buildings in Oakland.....	12,971 65
“ Free Scholarships.....	4,833 33
“ Support of Preparatory Department.....	2,045 39
“ Architects’ Plans.....	2,965 00
“ Legal Services.....	2,088 75
“ Rents.....	6,322 00
“ Advertising and Printing.....	3,366 41
“ Supplies, including Stationery.....	2,522 10
“ Insurance.....	1,693 18
“ Office Expenses.....	1,493 45
“ Sundry smaller accounts—in the aggregate.....	10,145 60
Total.....	<hr/> \$548,293 76

If we consider the \$50,000-mortgage unpaid, the actual cash expenditures in six years, have been \$498,293.76. If to this amount we add \$272,000 expended directly by the State for the construction and equipment of buildings, it will show a total expenditure on University account of \$820,293.

And now, what have we to show for this expenditure ?

1st. A splendid University of high grade and of established reputation, imparting instruction in all branches of useful knowledge, free to all comers, male and female, in successful operation.

No money consideration can represent the value of such an institution to the State.

2d. The amount paid for instruction, for free scholarships and for support of a preparatory department, aggregating \$235,705.47, has gone beyond recall.

For this we have nothing tangible to show. It is represented by the knowledge imparted to hundreds of the youth of our State. It will, we trust, bear its fruits in time, in the form of wise statesmen and legislators, accomplished scholars, original thinkers and inventors, able jurists, public benefactors, and virtuous citizens.

No mere dollars and cents can represent the value of these. But aside from the intangible blessings conferred by the University, the Regents, representing the State, have properties of great value to show for the money expended. Deducting from the total expendi-

ture on all accounts—\$820,293—the amount paid for instruction, \$235,705.47—and we have a balance of \$584,487.53. To represent this, the State owns :

Four blocks, with valuable improvements, in the heart of Oakland, worth at least .....	\$150,000
Two hundred acres of land at Berkeley, worth, at a low valuation, \$1,000 per acre .....	200,000
New buildings at Berkeley, thoroughly and handsomely equipped, that cost a total of \$326,500.72, which the most unfriendly critic, at all competent to judge, would probably value at not less than .....	300,000
Fifty acres of land in the suburbs of Oakland, donated by the late Edward Tompkins, believed to be worth, at present .....	40,000
A splendid collection of apparatus, that could not be duplicated in the United States by private parties, for .....	25,000
A valuable library, containing over 11,000 volumes, worth at least .....	15,000
Toland Medical Hall, in San Francisco .....	75,000
A museum, embracing extensive collections of minerals, works of art, etc.—chief among which are the State Geological Survey Collection, the Mills-Voy Collection, the Pioche Collection, and the Ward Series of Casts—worth, at a low estimate .....	35,000
Disregarding numerous less important donations, this gives us properties of the money value of .....	<hr/> \$840,000

We submit that this statement is a full refutation of the charges of carelessness and neglect made against the Regents.

We submit further, that it is conclusive evidence of the care, the ability, and the fidelity, with which they have administered the responsible and onerous trust confided to them. Deeply interested in the advancement of learning, and appreciating its inestimable value to the youth of the State, and to the State itself, we have labored zealously, and with an eye single to the public good, without compensation or the hope of reward save the consciousness of duty performed, to establish on a stable foundation, at the least possible expense, a first class University. In this we know we have succeeded. The consciousness of this amply repays us for our labors. If to this be added the approving voices of our fellow citizens, we shall be more than content.

Three exhibits are appended to this financial statement :

- A. RECEIPTS AND DISBURSEMENTS TO JAN. 2D, 1874.
- B. THE SAME TO FEB. 28TH, 1874.
- C. SALES OF AGRICULTURAL COLLEGE LANDS.



[APPENDIX A.]

# Receipts and Disbursements

## OF THE

# REGENTS OF THE UNIVERSITY,

From August 8, 1868, to January 2, 1874.

The resignation of Mr. A. J. Moulder, as Secretary of the Board, was accepted on the 2d of January, 1874. On retiring, he asked the Board to appoint an expert to examine his books, accounts and vouchers up to that date. In compliance with this request, the Board appointed Mr. J. Ham Harris, who has devoted himself closely to this work, and on the 3d of March, submitted the following report of progress.

Bear in mind that THIS REPORT EXTENDS ONLY TO JANUARY 2d, 1874.

### *Receipts.*

#### UNIVERSITY FUND.

Aug. 8 and 19.	Cash paid by State Treasurer to W. C. Ralston, Treasurer of the University .....	\$45,000 00
1868.		
October 28.	Cash received from sale of warrants on the State Treasurer .....	27,831 00
1869,		
November 10.	Cash received from the State, from proceeds of sales of Tide Lands on account of the \$200,000 appropriated to the University .....	100,000 00
August 5.	Cash received from the State Treasurer by W. C. Ralston, Treasurer of University .....	14,450 00
1870.		
December 31.	Cash received from the State Treasurer by W. C. Ralston, Treasurer of University .....	3,000 00
	Carried forward, .....	\$190,281 00

	Amount brought forward	\$190,281 00	
December 31.	Cash received from the State, from proceeds of sales of Tide Lands on account of the \$200,000 appropriated to the University .....	65,000 00	
May 1. 1871.	Cash received from the State from proceeds of sales of Tide Lands, being balance due on the \$200,000 .....	35,000 00	\$290,281 00

## STATE APPROPRIATION ACCOUNT.

August 26. 1872.	Cash received from the State Treasurer by W. C. Ralston, Treasurer of the University, as per following amounts, authorized by an Act of the Legislature entitled "An Act to provide for the support of the University of California," approved March 26th, 1872.		
	Deficiency for March, 1872 ..	\$2,265 32	
	" " April, " ..	5,376 55	
	" " May, " ..	5,771 95	
	" " June, " ..	5,144 72	
	" " July, " ..	3,835 42	
	" " August, " ..	5,653 65	
	" " Sept., " ..	5,943 17	
	" " October, " ..	5,553 38	
	" " Nov., " ..	5,809 79	
	" " Dec., " ..	4,911 65	
	" " Jan., 1873 ..	6,000 00	
	" " Feb., " ..	6,000 00	
	" " March, " ..	6,000 00	
	" " April, " ..	6,000 00	
	" " July, " ..	5,718 69	
LAND FUND.	" " August, " ..	5,848 52	85,832 81

Cash received from sales of University Lands:	
9,694 acres of land sold at \$5 per acre, for which payment was made in full .....	\$48,470 00
92 23-100 acres sold at \$6.25 per acre, for which payment was made in full .....	576 45
Cash received from sales of land sold at \$5 per acre, on which 20 per cent. of the principal was paid, and balance afterwards paid in full .....	16,126 60
Ditto, ditto, on lands sold at \$6.25 per acre .....	2,400 00
18,972 28-100 acres sold at \$5 per acre, on which 20 per cent. of the principal was paid .....	\$18,972 28
14,954 86-100 acres ditto, ditto, sold at \$6.25 per acre .....	18,693 41

Amount carried forward..... \$105,238 74

Brought forward .....	\$105,238	74
4,031 65-100 acres, sold at \$5 per acre, on which 20 per cent. was paid, and payment in full made subsequently .....	4,031	65
480 acres ditto, ditto, at \$6.25 per acre .....	600	00
109,870	39	
LAND INTEREST.		
Cash received from interest on land sales .....	24,793	04
FEE FUND.		
Cash received from Land Fees .....	2,304	00
BILLS PAYABLE.		
Assumption of mortgage on Brayton Property ..	50,000	00
ADMISSION AND TUITION FEES.		
Cash received from Students for admission and tuition fees .....	1,720	00
WATER RATES.		
Cash received from Water rents .....	941	00
EXCESS PAYMENTS.		
Cash received of \$1.25 per acre on double mini- mum lands—due to the U. S. Land Office ....	1,839	53
INTEREST AND DISCOUNT.		
Cash balance due from this account .....	9,753	39
Total Receipts .....	\$577,335	16

### *Disbursements.*

PREPARATORY DEPARTMENT.		
Cash paid to meet deficiencies in consequence of inability to collect tuition fees from day stu- dents .....	\$2,045	39
SALARIES.		
Cash paid salaries to President, Professors, Sec- retary, Land Agent, Janitor, and Messenger.	219,156	75
BUILDING FUND.		
Cash paid construction of College Buildings, for labor, material, etc., .....	54,500	72
UNIVERSITY SITE IMPROVEMENTS.		
Cash paid for fencing, grading, ornamental trees useful trees and plants, in improving College Grounds .....	20,974	50
COLLEGE OF CALIFORNIA.		
Cash paid for purchase of lands, expenses of sur- veys, attorneys' fees, etc. ....	49,030	04
UNIVERSITY WATER COMPANY.		
Cash paid for construction of Water Ditch, Reser- voirs, Iron Pipe, etc. ....	4,279	59
APPARATUS.		
Cash paid for apparatus, freights on same and insurance .....	18,974	19
Carried forward .....	\$368,961	90

Brought forward.....	\$368,961 90
RENTS.	
Cash paid for rent of College buildings in Oak- land, Janitor's house and Regents' office. ....	6,192 00
OFFICE EXPENSES.	
Cash paid for office expenses.....	1,493 45
GENERAL EXPENSES.	
Cash paid general expenses.....	7,757 57
ARCHITECTS' PLANS.	
Cash paid for plans and specifications.....	2,965 00
PERIODICAL FUND ACCOUNT.	
Cash paid for periodicals, etc.....	75 00
LEGAL SERVICES.	
Cash paid for searching title,, preparing deeds, etc., and special agent to Washington, etc..	2,088 75
LIBRARY FUND.	
Cash paid for books, with freight and express charges .....	7,132 74
CONTINGENT FUND.	
Cash to provide for payment of small bills by the President of the University.....	1,780 00
BRAYTON PROPERTY.	
Cash paid for Brayton Property—including inter- est on mortgage and transfers.....	112,476 25
EQUIPMENT AND REPAIRS.	
Cash paid for equipment of rooms in College buildings—repairs of same, etc.....	12,971 65
FREE SCHOLARSHIP.	
Cash paid for five free scholarships.....	4,833.33
ADVERTISING AND PRINTING.	
Cash paid for advertising in sundry papers, printing, etc.....	3,366 41
TELEGRAPHING AND EXPRESSING.	
Cash paid for sundry bills.....	191 59
STATIONERY ACCOUNT.	
Cash paid for stationery.....	508 16
INSURANCE ACCOUNT.	
Cash paid for insurance premium on Buildings and apparatus .....	1,693 18
SUPPLIES.	
Cash paid for supplies for laboratory, text books for examination—coal and wood, etc.....	1,593 94
MATERIALS FOR LABORATORY.	
Cash paid for chemicals for laboratory.....	286 44
POSTAGE FUND.	
Cash paid for postage.....	55 00
SUSPENSE ACCOUNT.	
Cash paid W. C. Ralston for advances on Con- troller's Warrants—to pay labor of students...	3,314 95
Cash balance on hand, January 2d, 1874. ..	37,597 85
Total Disbursements. ....	<u>\$577,335 16</u>

TO THE REGENTS OF THE UNIVERSITY OF CALIFORNIA :

GENTLEMEN.—I have made a full and minute examination of the books, accounts and vouchers in the office of the late Secretary of the Board, Mr. A. J. Moulder, from August 8th, 1868, to January 2d, 1874, and as the result, herewith submit a detailed statement of the entire receipts and disbursements during that period. This result calls for the sum of thirty-seven thousand and five hundred and ninety-seven dollars and eighty-five cents (\$37,597 85) in the hands of the Treasurer at the close of business on the evening of the first (1st) day of January, eighteen hundred and seventy-four (1874). The statement from the Bank of California shows this amount on deposit to the credit of the Regents of the University of California. Respectfully submitted,

J. HAM HARRIS,

*Examiner of Accounts.*

SAN FRANCISCO, March 3d, 1874.

[APPENDIX B.]

RECEIPTS AND DISBURSEMENTS  
OF THE  
REGENTS OF THE UNIVERSITY,

From August 8, 1868, to Feb. 28, 1874.

The following is a detailed statement bringing the receipts and expenditures up to FEBRUARY, 28th, 1874. It is, in effect, Appendix A, extended by the addition of the receipts and expenditures from January 2d, 1874 to February 28th, 1874.

This is the latest, and to it we refer in the body of our Report.

*Receipts.*

UNIVERSITY FUND.

From the State Treasurer..... \$306,661 80

STATE APPROPRIATION ACCOUNT.

From the State Treasurer for the support of the

University..... 106,032 99

LAND FUND.

From sales of land..... 114,025 47

LAND INTEREST ACCOUNT.

From interest on amounts due from sales of land 32,221 57

FEE FUND.

From fees on land sales..... 2,544 00

BILLS PAYABLE.

From mortgage loan on Brayton Property..... 50,000 00

ADMISSION AND TUITION FEES.

From students..... 1,720 00

WATER RATES.

From sales of water..... 1,074 50

EXCESS PAYMENTS.

From double minimum lands, due the United

States..... 3,970 00

INTEREST AND DISCOUNT..... 9,753 39

Total receipts..... \$628,003 72

## *Disbursements.*

### PREPARATORY DEPARTMENT.

For deficiencies on account of inability to collect from day students.....	\$2,045 39
--	------------

### SALARIES.

For salaries of President, Professors, Secretary, Land Agent, and employees.....	228,826 75
--	------------

### BUILDING FUND.

For construction of College Building.....	54,500 72
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### UNIVERSITY SITE IMPROVEMENTS.

For ornamental and useful trees, plants, etc., also fencing and grading, on the College grounds.....	21,151 05
--	-----------

### COLLEGE OF CALIFORNIA.

For purchase of lands, expense of surveys, attorney's fees, etc.....	49,030 04
--	-----------

### UNIVERSITY WATER COMPANY.

For construction of water ditch, reservoirs, iron pipes, etc....	4,279 59
--	----------

### APPARATUS.

For purchases, freight and insurance on same...	18,974 91
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### RENT ACCOUNT.

For rent of College Buildings in Oakland, Regents' office, and Janitor's house.....	6,322 00
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### OFFICE EXPENSES.

For expenses of office of the Regents....	1,493 45
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### ARCHITECTS' PLANS.

For amounts paid to architects.....	2,965 00
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### LEGAL SERVICES.

For attorney's fees.....	2,088 75
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### PERIODICAL ACCOUNT.

For periodicals.....	75 00
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### LIBRARY FUND.

For purchase of books, freight, and expenses on same.....	7,491 39
---	----------

### CONTINGENT FUND.

For payment of small bills by the President of the University.....	1,780 00
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### BRAYTON PROPERTY.

For the property and interest on mortgage....	113,592 45
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### FREE SCHOLARSHIPS.

For five free scholarships.....	4,833 33
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### ADVERTISING AND PRINTING.

For sundry advertisement bills, and for printing	3,366 41
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### TELEGRAPHING AND EXPRESSING.

For telegrams and express charges.....	191 59
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Carried forward.....	<div style="border-top: 1px solid black;">\$523,007 82</div>
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Brought forward .....	\$523,007 82
STATIONERY ACCOUNT.	
For stationery used .....	508 16
SUPPLIES.	
For wood and coal, text books for examinations, etc. ....	2,013 94
MATERIALS FOR LABORATORY.	
For chemicals, etc. ....	286 44
EQUIPMENT AND REPAIRS.	
For equipment of rooms in the University build- ings, repairs, etc. ....	12,971 65
INSURANCE ACCOUNT.	
For insurance on buildings and apparatus .....	1,693 18
POSTAGE FUND.	
For postage stamps and envelopes. ....	55 00
GENERAL EXPENSES. ....	7,757 57
Cash on hand February 28th, 1874. ....	79,709 96
Total Disbursements .....	<u>\$628,003 72</u>



## [APPENDIX C.]

## AGRICULTURAL COLLEGE LANDS.

February 28th, 1874.

## FROM SALES OF LAND.

9,694 acres sold at \$5 per acre .....	\$ 48,470 00	
346 74-100 acres sold at \$6.25 per acre. ....	2,167 15	
21,436 66-100 acres sold at \$5 per acre, of which 20 per cent. cash was paid, and remainder on time, and bearing interest at 10 per cent. per annum .....	21,436 66	
15,034 86-100 acres sold at \$6.25 per acre, of which 20 per cent. was paid in cash, and re- mainder on time, and bearing interest at 10 per cent. per annum .....	18,793 41	
4,031 65-100 acres sold at \$5 per acre, of which 20 per cent. was paid at the time of purchase, and balance afterwards paid in full .....	4,031 65	
Balance 80 per cent. due on sales at \$5 per acre..	16,126 60	
480 acres sold at \$6.25 per acre, of which 20 per cent. was paid at the time of purchase, and balance afterwards paid in full. ....	600 00	
Balance 80 per cent. due on sales at \$6.25 per acre	2,400 00	
		\$114,025 47
From interest on amounts due from sales of land	32,221 59	
From fees on land sales .....	2,544 00	
From excess payments of \$1.25 on double mini- mum lands, due the United States .....	4,760 87	
		\$39,526 46
Total number of acres sold .....	51,023 91-100	
Total payments upon land .....	\$114,025 47	
Add for interest .....	32,221 59	
Add for fees .....	2,544 00	
		\$148,791 06
Balance of 80 per cent. due on sales at \$5 per acre .....	75,889 12	
Balance of 80 per cent. due on sales at \$6.25 per acre .....	74,774 46	
		\$150,663 58

# THE HISTORY OF THE REIGN OF CHARLES THE FIRST

By  
 JOHN BURNET  
 A M. A.  
 OF THE UNIVERSITY OF OXFORD  
 AND  
 OF THE SOCIETY OF CHRISTIAN DOCTORS  
 IN THE UNIVERSITY OF CAMBRIDGE  
 IN TWO VOLUMES.  
 THE SECOND VOLUME.  
 LONDON,  
 Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard, near St. Pauls Church.  
 1679.

## RESPONSE TO THE FOURTH INQUIRY.

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### REPORT OF AN ENGINEER

UPON THE

# Development of the Grounds AT BERKELEY.

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“*Fourth.* In response to this inquiry, the following Report in respect to the grounds is presented. It is drawn up by W. H. Hall, Esq., a most competent engineer, to whom the supervision of the work has been entrusted :”

TO THE HONORABLE BOARD OF REGENTS AND PRESIDENT OF THE  
UNIVERSITY OF CALIFORNIA :

GENTLEMEN.—In presenting the Diagram, herewith transmitted, representing the plan I have proposed for the development of the University Grounds at Berkeley, I have deemed it expedient to call your attention to the circumstances connected with their past manipulation, and to review the leading ideas and features proposed to be embodied in their future improvement.

The first steps which were taken towards the improvement of these grounds, were made by its former managers—the Trustees of the College of California, a private corporation—who in 1865, obtained the services of Mr. Olmsted—the accomplished Landscape Engineer—then on a visit to California. This gentleman devoted much time and study to his subject, the results of which were embodied in a plan for the grounds, and a report, dated June 29th, 1866, in which the full æsthetic idea of the improvement is ably reviewed.

The College of California was a private corporation, which contemplated the establishment of a modest institution, chiefly of a classical and literary nature. Two buildings, at most, were to be

erected. The site embraced over a hundred acres of land, and Mr. Olmsted was asked to prepare a plan for its improvement as a park. He called the attention of the Trustees to the fact, that the maintenance of such a ground, would be a burdensome tax upon their corporation; and advised them to create upon their ground a suburban residence neighborhood, reserving only sufficient space for College purposes, at most but thirty or thirty-five acres. His views were adopted, and his plans were formed to develop the grounds in a manner suitable for the purpose specified.

Subsequently, the land was deeded to the State, upon condition that on it should be established a UNIVERSITY, and that the entire site should be occupied for such purpose. Features of other elements, merged into this institution, contemplated grounds for agricultural and horticultural operations, and the tract so donated afforded the requisite space. Thus the present plans for improvement are based upon an idea totally different from that upon which Mr. Olmsted formed his scheme; involving the conception of the entire area of one hundred and fifty acres manipulated as one educational institution—the material University. The plans prepared by Mr. Olmsted, therefore, were not available for the present institution, however much suited to the requirements of the College of California they may have been, or artistic and perfect for the formation of the contemplated suburban Home Grounds, as no doubt from, the well-known ability of the author, they were.

I have found it necessary, therefore, to make a renewed study of the subject; substituting for the idea of a rural town, the conception of an educational park, capable of being made complete in the requisite details of agricultural, horticultural, and general scientific study, so far as nature will permit the development of such elements. I have also found it expedient to disregard, in a great measure, certain partial improvements, in the way of grading for roadways, as well as much of the planting of trees, executed during the interim, and which have evidently not been done according to any well considered plan.

Unfortunately, there is not that appreciation of the importance of prearranged and definite plans for such works, which there should be. The grounds around public buildings are regarded as immaterial accessories of the main architectural features, and not

as settings to the gems, which they really are ; essential parts of an harmonious whole, suggestive of its character, in keeping with the design, and promotive of its convenient and effective use. All rational improvement of grounds is necessarily founded on a due attention to the character of the institution of which they form a part ; upon a thorough study of the situation to be handled, and of the climatic and neighborhood influences to which it is subjected. The situation is, of course, a natural formation, to be adapted by Art to the uses required. The character of the institution governs the manipulation of the details of construction, in the grounds as well as the buildings, the allotment and adaptation of the various natural features to their specific purposes ; while the climatic and neighborhood influences have an immediate and important effect upon the convenient and pleasurable use, as well as the successful improvement, of the demesne. All such improvements, however blessed by nature their site may be, must be regarded from their inception as works of Art. Nature does not provide lands shaped, and drained, and planted to suit the specific purposes of man. We are to seize her salient features, and allot them, as may be best, to our definite requirements ; and, while preserving her more attractive spots in their integrity, develop an intricacy, a diversity of detail, presenting a succession of pleasing situations, varied in character, yet so arranged as to be in accord with each other.

The arrangement of these grounds constitutes something more than the laying out of avenues and the planting of trees. It is in reality the planning of the material University. Neither one nor all of the buildings which are to be placed there, make up this institution in its entirety. It comprises all within the boundaries of the tract, and must be regarded as one big structure, in which the several buildings, designed as they will be for different purposes, are as rooms or wings set aside to such specific uses ; superior in importance, and requiring a greater share of study in their design it is true, but no more distinctive features to be considered than the botanic garden—for the scientific arrangement of the plants, the departments for the practice of horticulture and agriculture, or even the recreation grounds, the ramble in the woods, or the mere landscape effects. Of course, when these principal features—the main architectural works—are located, we have to adapt all else

to them ; but where such is not the case, a considerable amount of care may well be taken in properly placing them. We cannot, however, fix or describe the situation suitable for a house, without at the same time forming some idea of the structure suited to the situation ; nor should we make an allotment of ground to any specific purpose, without considering whether such use is to be suited to the locality.

I proceed at once to a consideration of the requisites of a general plan for these grounds, and the attention they have received at my hands :

1. That the building sites which nature has provided be preserved for such purpose and set aside for the most appropriate occupation.

- (2) That suitable localities be designated for other specific purposes, and developed in a manner suited to such use.

- (3) That the general development of the grounds be such as will promote the convenient use of the principal elements of the institution, and enhance the natural beauty of the site, while introducing the artificial structures necessary for its profitable occupation.

- (4) And that economy of construction and maintenance be closely adhered to and planned for.

Taking the two Colleges now completed as a nucleus, there are eight principal sites for large buildings. On this basis I have supposed the future University to consist of a College of Agriculture, a College of Letters, (the two buildings now completed) a School of Mines, a School of Engineering and Mechanic Arts, a Museum, a Library, an Assembly Hall, and a School of practical Agriculture and Horticulture ; and so placed them, as indicated, on these sites, as would seem most fitting. The Library, an ever increasing element, in a locality where it will have room to spread to a vast size, very convenient of access from without the grounds, central to the Colleges of Agricultural Science, Letters, and School of Engineering and Arts, the pursuit of the courses of study in which will most frequently necessitate reference to its volumes. The Museum, also a growing institution, on a spot where its building may be enlarged, adjacent to the Schools of Mines, and Engineering and Arts, to which departments a great portion of the contents will have

some relation ; while the School of practical Agriculture and Horticulture is located in the midst of the grounds allotted to the experimental pursuit of its course ; and the Assembly Hall upon the most pleasing and inviting site, retired, yet the most accessible from the two main carriage entrances, and from the depot of the horse-cars without.

I have regarded the proper disposition of the residences of the members of the Faculty as a most important element in the problem ; the more so, that they are not properly features of the University itself, and should not appear in its main groupings. I find a site which had been suggested, at the southwest corner of the grounds, most fitting for the purpose ; and have so developed a neighborhood as to render its occupation pleasurable and convenient, as the arrangement of the lots and houses fronting upon a little Park, and of the rear entrances and walks will indicate—the whole to be excluded from view, from the main grounds, by plantations following the general line of the back walks. Of the many reasons for this location and development, I mention several, viz : First. The impropriety of bringing into the grouping of structures in the main portion of the grounds an element so foreign to the general tone of the establishment. Second. Opportunity for drainage and sewerage at small expense. Third. Facility with which rear yards and offices may be excluded from view. Fourth. Accessibility by commercial travel, thus excluding the necessity for a very undesirable class of vehicles entering the grounds. Fifth. Greater neighborhood convenience, and ease of access to the occupants of the houses themselves.

A Conservatory, wherein much botanical knowledge can best be acquired, and always a pleasing and attractive feature, is located at a protected spot, where the ground about it is adapted to the cultivation of such plants and shrubs as would be appropriate in its neighborhood, and where it will present a remarkably fine effect in the principal landscapes. This feature, and the surrounding rich garden, the space devoted to Economic Botany — a low valley well adapted to the purpose—and the horticultural grounds on the table land above, are all adjacent to the nursery and propagating houses, from whence they will be in a measure supplied with stock. The

public picnic ground remains as it is, remote and sheltered, and easily arrived at from without.

The University grounds must not be regarded as a driving-park. Such a presumption would soon bring about a use of them highly detrimental to the real object of the institution. Drives there will be, in abundance, in the neighborhood; one—the Piedmont Way—traversing the upper portion of the tract itself, and which I have carefully planned without connection with the roads of the University, in order that such roads will not be converted into thoroughfares between the low lands and the way above. Roads, therefore, must be regarded as necessary evils in the University grounds, and only located where desirable to approach its principal features. The least measure of roadway to answer this requirement is the proper amount to be planned. A strict adherence to the natural topography, maintaining very easy grades, and avoiding earthwork, with a width just sufficient to answer the purposes of maximum travel—from twenty to twenty-five feet—touching upon the points required to be approached by vehicles, and an observance of the rules of tasteful landscape gardening, with the requisites of good engineering principles, are the considerations which have influenced the location of these features, as embraced in my plan. Another reason for limiting the amount of roadway is found in the observance of the fourth requisite of a plan for the grounds—namely, economy of construction and maintenance. Roads are expensive to make, and expensive to keep in repair. This consideration is also applicable to walks; and therefore I have planned with a view of making these direct avenues of communication between the principal structures, as far as the restrictions indicated above would permit, except at several limited localities, where it is desirable to awaken some special interest by the development of parterres, devoted to ornamental as well as instructive horticulture and floriculture.

Gateways are offices requiring attention; a multiplication of them increases cost of maintenance, and destroys the air of security and seclusion which these grounds should have. Therefore, two carriage entrances on each the north and south sides, with one upon the west, is all that is admissable. It was proposed to locate the main entrance at the end of University Avenue; a most un-



fitting place, upon the side of a hill, necessitating a steep grade to surmount, or a sharp curve to avoid it, and otherwise violating the established rules of good taste and engineering. The main entrance to the University should be spacious, commensurate with the dignity of the institution, and in keeping with the general air of the grounds. The valley where I have located it admits of this treatment; the end of University Avenue, as projected, does not.

Though the principles of landscape composition should govern in a great measure the arrangement of these grounds, the fact that the institution is one of learning should be held in view in the development of every portion of the lands; but the entire conversion of this beautiful site into a school of practical horticulture and agriculture would be a needless act of vandalism. I would therefore establish a series of botanical studies, grounds for economic botany, the culture of fruits, berries, and farm produce; a forestry, an arboretum and other instructive features, some of which are indicated, stocked with a variety of trees and shrubs; but I would make their arrangement subservient to principles governing the effect of the whole, and not a mere carrying out of botanical classification.

One other feature demands some attention: the terraces around the Colleges of Agriculture and Letters, now in course of construction.

These buildings are massive structures, set upon a formal frontage line on the gently sloping surface of a flat spur of the hills. They occupy about the sites selected by Mr. Olmsted for the two buildings contemplated for the old College of California, as near, at least, as one can judge from the text of his report (the drawings not being at hand).

Public buildings, from their stately character, obviously demand the most formal settings; and none require greater space in this treatment than those to be frequented by crowds of college boys. The planning of this particular portion of the Berkeley improvement has been done with the view of providing suitable settings for these buildings, affording ample room for the throngs of scholars and their friends, who may be expected to congregate about them at times, and introducing elements which will heighten the effect of the general rural air of the grounds, by imparting a breadth of foreground, a charm of variety, and a contrast of the decorative

art with the beauties of nature. Their principal effect, from the west, will be to impart a dignity, a sense of security and stability to the structures, which the preservation of the natural slope would have defeated.

The fact that a hummock of earth existed upon the hill between the two buildings, cutting off the view of one ground line from the other, has necessitated the execution of the earth work which is now in progress. The plan contemplates the removal of this unsightly protuberance, and the use of the material so obtained in the construction of the roads and terraces in front of the buildings; while the ground in their rear will be sloped back into the present fall of the hill, so as to have a perfectly natural appearance on this side of the buildings. The preservation of the original slope about these buildings, with a natural treatment of the grounds up to their bases, would have been about as appropriate as the location of a castellated gothic structure in the middle of a wide plain, or the construction of a fancy woodwork foot bridge at the base of the Yosemite Falls. There will certainly be some small area of well-kept ground at Berkeley. This I have rendered possible to restrict to a small extent by the construction of the terraces, which, being treated as such dressed ground, establish at once an appropriate limit to such treatment, thus enabling the expense of maintenance to be reduced to the least amount, and avoiding the appearance which the building would otherwise have—of a couple of fine structures in the middle of a ploughed field. In this connection, it may be well to mention, that the plan submitted by Mr. Olmsted for treatment of the grounds around the two buildings contemplated by the old College of California, which, as said before, were to be located in nearly the place now under consideration, was similar in general æsthetic style to that which I have adopted, as we gather from the following paragraphs quoted from his report:

“The central buildings are intended to be placed upon an artificial plateau at the head of the dell before described.” \* \*

\* \* \* \* The west front of this plateau is designed to take the form of an architectural terrace. \* \* \* \* \*

\* \* \* \* At the foot of these walks appropriate entrances are provided from a carriage way.”

“ The construction of the necessary plateau will not be an expensive undertaking, as the working plan will show, and the terrace may be finished very plainly and cheaply. At the same time, the introduction of a high degree of art at any time in the future will be practicable, in the form of statues, fountains, and a highly decorated parapet with tile and marble pavement upon the terrace, and on each side of the broad walks, the intermediate quadrangle, and the stair and entrance way.”

Though Mr. Olmsted's general plan for the grounds could not have been adapted to the wants of the University, his conception of the treatment immediately about the two central structures of his design, was evidently identical in æsthetic idea with that which I have adopted, and I gladly avail myself of the above quoted paragraph in further elucidation of this feature of the plans now submitted.

There is probably no established University in the world, whose grounds take so prominent a part in the general educational system of the institution as those at Berkeley may be made to perform, by a judicious system of development. After the general design is fixed, and its outlines laid upon the ground, the execution of its details, performed as they may be in a great measure by the students, will afford valuable practical examples of the theories taught in the agricultural, engineering, and mechanical courses of study of the institution.

The expense of executing the works embraced in the ground plan herewith submitted, will, of course, be governed by the style of the detail work undertaken, which could be made to cost much or little. The expending of these moneys, after the primary works are finished, may be prolonged through a series of years. It is expedient, however, that the works necessary for the pleasurable and profitable occupation of the grounds be executed at once; and for this purpose, at least fifteen or twenty thousand dollars for each of the succeeding two years, will be required.

Very Respectfully,

Your obedient servant,

WM. HAMMOND HALL,  
Engineer.

SAN FRANCISCO, February 21st, 1874.

# Special Information

## RESPECTING

# AGRICULTURAL EDUCATION.

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The Regents are of opinion that, in promoting the department of Agriculture, so far from showing any unfriendliness or hostility (as has been charged), toward this most important interest, they have done all that was consistent with the full discharge of the trust confided to them. They have been minutely informed of the difficulties encountered elsewhere in the solution of this problem; of the disappointments and changes which have occurred in other well-known institutions; and of the local complaints which have been uttered respecting the very colleges and universities, whose example they are urged to follow. This has made them cautious, but it has not made them indifferent. On the contrary, they are desirous of making the University subserve, to the utmost, the Agricultural interests of the State, as well as its other industries, and they will welcome all the pecuniary assistance, and all the good suggestions which the Legislature, the Agricultural Societies, and individuals may contribute to this end. They beg those who are interested in the problem, to examine the catalogues, registers, and reports of other State colleges, and not rest their opinions upon vague and inaccurate rumors, or hostile criticisms.

The Regents especially request that the following points be borne in mind in judging of their work:

1. The Congressional enactment, of 1862, giving what is commonly called the Agricultural Fund to the State, was not the beginning of the University of California. It was preceded by the University or Seminary grant, given to California as to other new States for a University, and by the foundation of the College of California.

2. The Congressional endowment of 1862, commonly called the Agricultural College grant, was not given for a mere Agricultural College, but as the law (already quoted more fully) declares, "for

instruction in those branches of learning which are related to agriculture and the mechanic arts"—“not excluding other scientific and classical studies.”

3. This fund, called the Agricultural College fund, has thus far yielded in six years, since 1868, an income of \$32,221 only, which is about \$450 per month, from the foundation of the University. The salary of the Professor of Agriculture alone, is \$300 per month, not to speak of any other instruction given, or expense incurred for the department of Agriculture.

4. The Agricultural College or Course, was first organized as required by the State law. Its course of studies has never been diminished or its advantages lessened. The Professor of Agriculture has been untrammelled. By the appointment of a special Professor of Chemistry, he has been relieved of the arduous work of instruction in elementary and analytical chemistry, and has thus more time at his command for special Agricultural experiment and instruction. Still further improvements have been made.

5. As Agricultural students were slow to present themselves, the Board encouraged the Professor of Agriculture to travel through the State, and benefit by his lectures the Agricultural communities.

6. The University was not removed to its permanent site at Berkeley till September, 1873, three months only before the assembling of the present Legislature; so that there has been very little opportunity for agricultural work. It then became possible to comply with two requirements of the law—the establishment of a system of moderate manual labor, and the removal of the Secretary's office and residence to Berkeley. Arrangements were at once made for accomplishing both these results. About fifty students have been employed in labor upon the grounds.

7. Before deciding upon the various uses to which the beautiful grounds at Berkeley should be assigned, the Board availed themselves of all the suggestions of the Professor of Agriculture, and of the plan which he presented last year; and they also took the best advice which they could obtain from other professional and experienced sources.

Four surveys of the grounds have been found necessary, and have been made:

1. A topographical survey, exhibiting accurately the surface of the site—an essential preliminary to all other work.

2. A survey of the boundaries—to determine some very important differences of opinion.

3. A study of the water supplies, which are now ample and should never be diverted.

4. A study of the site with reference to its occupation by the University, for all time. This required the consideration of probable building sites, roads, paths, bridges, drainage and also the introduction of varied vegetation, and the use of the grounds for agricultural and horticultural experiment, forestry, botanic garden, etc. This survey has but recently been completed, and the report of the engineer to whom it was entrusted is herewith submitted.

8. In accordance with the request of the Professor of Agriculture, made Sept. 18th, 1872, he was then authorized to employ the services of a competent gardener, at the salary of \$100 per month, and the resolution has never been rescinded, though no candidate for the place has ever been proposed by him to the Board. He was also authorized to proceed with the construction of a propagating house, according to his request, and the sum asked for was appropriated to build it. On the removal to Berkeley a sum of \$500 was placed at his disposal, to secure the aid of competent experts as occasional lecturers, during the year, in matters of practical agriculture. These subjects are referred to that the good will of the Board toward the Agricultural College may be illustrated.

Complaint has been made that the lecture-room of the Professor of Agriculture is upon the basement floor. The Board have never received from him any expression of his wishes, and are sure that there is no reason but his own preferences, why his lectures should not be given in any other lecture-room which he may prefer. These are very trifling points to bring before the Legislature and the public, but a word of explanation seems called for.

9. The Board are very desirous of securing progress in the department of Agriculture, and have already in their annual report, (December 1, 1873), asked for appropriations which would enable them to give it more efficiency. They have requested means for the improvement of the grounds, and for the employment of additional teachers. They will welcome and administer with

fidelity all assistance which may be given to them for this purpose. They especially desire to begin a system of experimental work according to the most enlightened plans, and to have at Berkeley illustrations of all the vegetation which the climate and soil will admit, and a museum which shall exhibit fully the products of the soil elsewhere.

Finally, in judging of the actual condition of the Agricultural College, it should not be supposed that one-twentieth of the income of the University is all that is given to that department. Every thing connected with the University — books, museums, apparatus, laboratories, grounds, buildings, teachers—are open to agricultural students as much as to any others. They profit, as a matter of fact, by all these advantages.

Seventeen of eighteen professors and instructors now teaching at the University, instruct agricultural students. The subjects in which they teach are not merely literary studies. Professor Carr teaches Agriculture and Horticulture; Professor Rising teaches Chemistry; Professor John Le Conte, Natural Philosophy; Professor Joseph Le Conte, Botany, Zoology, and Geology; Professor Soule, Engineering; and Professor Welcker Mathematics; and these are the very things which a special and purely Agricultural College would first provide—if such a school was to be established away from a university.

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In further explanation of paragraph numbered “5” as above, the following resolution, adopted by the Board of Regents, on the 8th day of January, 1870, is submitted :

“ *Resolved*, That in order to extend the advantages of the Agricultural College of the University to the largest possible number of citizens, and especially to persons practically interested in farming, fruit culture, wine making, wool growing, and stock raising, the Professor of Agriculture, Agricultural Chemistry and Horticulture, shall visit as far as possible all the agricultural centers of population in the State, and in every convenient neighborhood where accommodations can be obtained, deliver one or more lectures, illustrated, when practicable, upon subjects connected with agriculture, likely to be of most value and interest to the people of the locality.

“ In these lectures it shall be his care to disseminate such information, derived from study, from observation, from correspondence, and from general experience, as will be of practical use to the farmers, fruit growers, and stock raisers of the State, having special reference to the imparting of valuable information upon the nature and best mode of culture, of such new crops, fruits, trees, and vines (and the preparation of their products for market) as may be adapted to the soil and climate of California, and likely to increase the productive resources of the State.

“ His course of lectures shall embrace the branches for which instruction is now provided in the University, viz., agriculture proper, agricultural chemistry, zoology, horticulture, geology, veterinary science, botany, rural economy, meteorology, diseases of animals and plants, forestry, and all kindred subjects ; it being the intention of the Regents, by the course here adopted, to transfer the Agricultural College of the University from the closet to the field, and make its instructions of practical value to the people of the State. These lectures shall be free, and public notice shall be given of the time and place of their delivery.

“ During his tour through the State, the Professor of Agriculture shall carefully examine the growing crops, study their culture, noting particularly any exceptional influences calculated to injure or improve them, and communicate the results of his observations in his lectures. He shall take special pains to collect statistics of the crops, flocks, and herds of the State, and shall report them from time to time for publication.

“ He shall open communication with all local agricultural societies, and so far as possible, place his services at their disposal, and deliver his instructions under their auspices.

“ *Resolved*, That the Board of Regents will take charge of and will themselves procure, as far as possible, from all quarters, at home and abroad, rare and valuable seeds, and will distribute the same, through their Secretary and Professor of Agriculture, throughout the State, to such persons as may desire to test their growth.”





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